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A

SHORT TOUR IN SUTHERLAND

Searching for Wild-Fowl Eggs.

Vol. ii. Frontispiece.]

A TOUR IN SUTHERLANDSHIRE

WITH

EXTRACTS FROM THE FIELD-BOOKS

OF

A SPORTSMAN AND NATURALIST

By CHARLES ST. JOHN, Esq.

AUTHOR OF 'WILD SPORTS AND NATURAL HISTORY OF THE HIGHLANDS'

SECOND EDITION

WITH AN APPENDIX ON THE FAUNA OF SUTHERLAND BY
J. A. HARVIE-BROWN, F.Z.S., ETC., AND
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A

SHORT TOUR IN SUTHERLAND.

FIELD-NOTES FOR THE YEAR—CONTINUED.

CHAPTER XXI.

OCTOBER.—PART I.

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October is, in this country, one of the finest months of the whole year. The cold cutting winds of November are frequently preceded by bright, clear, sunshiny weather, most enjoyable and invigorating to all whose avocations and amusements keep them much in the open air. The birds, both migratory and stationary, begin now to establish themselves in their winter quarters; and scarcely a day passes which is not marked by the arrival or departure, or the winter preparations of some of the feathered races in this country.

On the 4th of October, during the mild season of 1847, I found a pair of young wood-pigeons in a nest near the house. A few days afterwards they were both dead, either from the old birds having been killed, or from the coldness of one or two of the succeeding days. The latest landrail that I killed was on the 6th, and a fatter bird of any description I never saw.

Three or four quails were killed at the beginning of October in the eastern part of the county. During the month of May I constantly heard the call of the old birds close to my house; and we saw them several times basking in the sun on one of the gravel walks.

On the 11th and 12th large flocks of wild-geese passed to the south. There was at the time a considerable sprinkling of snow on the Ross-shire and Sutherlandshire mountains. None of the gray or bean-geese seemed to alight anywhere in this neighbourhood during the autumn; but a flock of that very beautiful species the white-fronted goose took up their quarters about the fresh-water lakes. Being anxious to procure one of these birds, I went the following day to look for them. It is a long, tedious walk through the wild desolate country which bounds the sandhills to the westward, and separates them from the lochs and swamps which the swans

and geese frequent when in this region. After a long search for the birds a sudden gleam of sunshine showed us their yellow bills and white foreheads conspicuously above the rough grass and herbage of the swamp in which they were feeding. They did not appear to have taken any alarm at us; so putting myself under the guidance of my old keeper, who seemed to have a perfect knowledge of every ditch and hollow of the ground by which an approach could be made, I crawled and wormed myself along to within sixty or seventy yards of five of the birds. To get any nearer, unseen, was impossible; raising my head, and trusting to Eley's cartridges and No. 3 shot, I fired and killed a brace of these very beautiful birds; a third fell, but rose again, and recovered himself.

The white-fronted geese remained in or near the same district, with only occasional absences, during the whole winter, and until the month of April; their habits in this respect being very unlike those of the bean-geese, who in this region are never stationary for above a few days. The white-fronted goose is the handsomest species, both as to form and plumage, that we ever see in Scotland. The full-grown birds are distinctly and beautifully marked with black bands on the breast, and have a pure white spot on the front of their head. They

are of a compact, firm shape, and walk with great activity and lightness while feeding. Unlike the bean-goose, they frequently feed in pools and swamps where some favourite plant grows ; and in situations which the sportsman can easily approach, sometimes close to furze or other cover. The other kinds of geese never by any chance commit themselves in the same manner, but always feed and rest in the most open situations, where it is almost impossible to approach them unseen. The white-fronted goose has much more the form and appearance of the common tame goose than the bean-goose. In this respect, as well as in the peculiar shape of the head and bill, it exactly resembles the gray lag.

A single very large wild-swan appeared on the lakes on the 18th of October, and on the 20th he was joined by two more. The wild-swans, on their first arrival, almost always fly into the bay from the south, coming in flocks of one hundred to two hundred together. The only way I can account for this, knowing that they must of necessity have wended their way from the north, is, by supposing that they first alight on some of the mountain lakes between Findhorn and Strathspey. A large flight of these noble birds, as they circle round the fresh-water lakes on their first arrival, is one of the most beau-

tiful sights imaginable. There is, too, a wild harmony in their bugle-like cry, as they wheel round and round, now separating into small companies, as each family of five or six seems inclined to alight, and now all joining again in a long undulating line, waiting for the word of command from some old leader, whose long acquaintance with the country and its dangers constitutes him a swan of note among the common herd. At last this leader makes up his mind to alight, and in a few moments the whole flock are gradually sinking down on the calm loch. After a brief moment or two spent in looking round them, with straight and erect necks, they commence sipping the water, and turning their flexible necks into a thousand graceful curves and attitudes. They then break off into small companies, each apparently a separate family, and set to work, with seemingly a most excellent appetite, on the water-grasses and plants. I regret to say that the number of wild-swans seems to decrease every year. Fewer and fewer visit this country, scared away, probably, by the yearly alteration made in their favourite haunts and feeding-grounds by draining and other improvements, which substitute oats for rushes, and sheep for wild-fowl, an alteration by no means gladdening to the eyes of my old *garde-chasse*. The diminution in their

numbers does not result from the quantity killed, which, comparatively speaking, is inconsiderable.

On their first arrival the swans are much less shy and wary than they are after a few weeks' experience and knowledge of the dangers which surround them. On these lochs, which are tolerably quiet, a flock generally remains during the whole winter. The feeding is good, and when anything disturbs them the sands of the bay offer them a sure refuge. I seldom interfere with them, unless I happen to want one for any purpose; and in reward for this forbearance I have the pleasure of seeing them every day in nearly the same part of the water, either feeding on the plants or pluming themselves on the small banks and islands. Their favourite loch is, of course, the one least accessible to any enemy.

The flesh of the wild-swan, at least of those who feed inland, is perfectly free from all strong and unpleasant flavour, their food consisting almost wholly of a kind of water-grass which has a bulbous root. In these lochs there is a good supply of this plant, and the swans become very fat, so much so as to make it exceedingly difficult to preserve the skins, the only part of them which I put to any use. When the feathers are picked out, there remains on the skin a great thickness of very

beautiful snow-white down, which, when properly dressed by a London furrier, makes boas and other articles of ladies' dress of unrivalled beauty.

Our omnivorous ancestors appear to have been great eaters of swans. Amongst other dishes at a feast in the reign of Edward IV., mention is made of "*four hundred* swans." Those said ancestors must have had marvellous capacious stomachs; for at the same feast there was the like number of herons, besides endless other little delicacies, such as "two thousand pigs;" the last entrées mentioned being "twelve porpoises and seals," these probably being reserved to the last as a *bonne-bouche*. Truly, the tables must have groaned, *literally*, not *figuratively*, under the burden of the good things laid upon them.

The wild-swans, on their first arrival, as I before remarked, are not nearly so wild as subsequent ill-treatment renders them, and I never found much difficulty in procuring a brace, or more, early in the season. Awaiting their arrival at a feeding-place is generally the surest way of getting a shot, or by waylaying them in their passage from one loch to another. On a windy day I have got at them, where the situation has been favourable, by dint of creeping up through bog and ditch. In rough weather they are not so ready to take wing, and

with good management may be driven from one end of a loch to the other without quitting the water.

October is the month when the greatest number of widgeon arrive in the bay; and the mallards, also, keep up a constant quacking and calling on the sands. Every evening at sunset, or soon afterwards, the latter birds fly to the stubble-fields, preferring those where there is the least quantity of grass to cover the scattered grains. The water-ousels now come down to the burns near the sea; and these merry little birds resort to the very same stones year after year. They appear to be regular attendants on the small streams and burns where the trout spawn.

Immediately on the retiring of a flood in the river, great numbers of snipes are seen on the mud and refuse left by the water, feeding busily. Where they come from is difficult to say, as at this season, except on these occasions, we have no great abundance of these birds. Redshanks, in considerable flocks, follow their example. On the 16th I see redwings in the hedges; fieldfares do not appear until ten days afterwards. The wood-pigeons now fly considerable distances to feed on acorns. In the south of England I have killed wild-ducks with their crops nearly bursting with the quantity of

acorns they had swallowed. They collect them from the single oak-trees standing in grass-fields.

From the variety of food found in the crops of wild-ducks it is evident that these birds must wander far and near during the night, and often into places where no one would expect to find them. Though the peewits generally leave us early in October, a flock is sometimes seen at the end of the month. The golden plovers collect in great crowds on the banks of the river to enjoy the morning sun. They are now in excellent condition.

The proceedings of the common long-tailed field-mouse are amusing, and indicate the care with which these little animals provide against the cold and scarcity of the winter. They dig deep holes in the stubble-fields, in which they collect large stores of food, such as grain, acorns, nuts, and even cherry-stones. On the approach of cold winds or rain they shut themselves up in their underground habitations, closing the aperture completely. The quantity of earth which they dig out and leave at the mouth of their hole in a single night is quite astonishing. At the instigation of the gardener my boys wage war against these little animals. By pouring water into the holes the poor mouse is obliged, *nolens volens*, to bolt like a rabbit driven out by a ferret.

Late in the afternoon I constantly see the roe feeding on those clover-fields where there is sufficient second growth to attract them. Nothing can be more graceful than the light and agile movements of this animal while nibbling the tender shoots of the bushes or trees on which it feeds. The wild-rose and the bramble are amongst its favourite morsels; from the long twigs of these plants it nibbles off leaf by leaf in the most graceful manner imaginable. As the leaves fall from the birch and oak woods the roe quit them, and take to the fir plantations, where they have more quiet and shelter. The foresters accuse these animals of being very destructive to their young oak-trees; and fond as I am of them, I am afraid that I must admit the accusation is just, as they undoubtedly prefer the topmost shoot of a young oak-tree to almost any other food. Nevertheless, the mischief done to the woods by roe is but trifling when compared to that done by rabbits. Many an acre is obliged to be replanted owing to their destructive nibbling; and in some of the beautiful woods of Brodie I saw the fine holly-trees of many years' growth, with stems of six inches in diameter, perfectly killed by being barked by rabbits.

Most of the hill-bred hawks, such as hen-harriers, merlins, peregrines, etc., come down now to hunt

the fields, which are clear of corn, and also to feed on the plovers, etc., which frequent the shore. I sometimes see the peregrine in pursuit of wild-ducks; and one day I observed a hawk of this kind give chase to an old mallard. The pursuit was rather curious, reversing the usual order of things, as the falcon's great object was to keep below the mallard instead of above him; the latter endeavouring all he could to get to the water, in which case he knew, as the hawk did also, that his chance of escape would be the greatest. Once in the water, his own element, by diving and swimming he would soon have baffled his pursuer. I don't know what was the end of the chase; the last I saw of them they were winging their rapid flight straight across the sea for the opposite coast of Ross-shire. Either the hawk was not willing to strike his prey while over the water, or the mallard had a vigour of wing which enabled him to keep ahead of his murderous enemy.

My tame peregrine, after some years spent in perfect friendship and alliance with our pet owl, ended in killing and eating her; a piece of ungenerous barbarism which I should not have suspected so fine a bird would have committed. They seemed to have quarrelled over the remains of some bird that was given them. At any rate all that

remained of the poor owl was a leg or two and some of the longer feathers.

The country in its present enclosed state is not so well adapted to the sport of hawking as formerly; but, as far as relates to the training of the birds, the process is much more simple and easy than is generally supposed. Of course the trainer must take in hand a bird of the proper kind, such as a peregrine, a merlin, or an Iceland or ger falcon. A goshawk is tractable enough, but has not the same dash and rapid flight as any of the true long-winged falcons.

The first step is to accustom your bird to the hood, without which you can do nothing; but most hawks allow themselves to be hooded quietly enough, and are then to a great degree under your command, as when hooded you can carry her when and where you like on your hand, and familiarise her to your voice and to being handled.

The next step is to accustom the hawk to feed on the lure, and *only* on the lure, so as to fly directly to it whenever she sees it: indeed, the lure ought only to be shown when the bird is to feed.

These two points gained, you must proceed to flying the hawk in an open field, substituting a long silken string, or "creance," for the short leathern strap, the "leash," by which you always

hold her. By taking her out hungry, and by showing her, when mounted in the air, the lure with food attached to it, you will find that she will swoop at once down to her usual feeding-place, which, as I have said, should be the "lure" only.

After doing this two or three days, if the hawk appears tractable, and not at all shy or wild, take her out when very hungry and let her mount without any "creance;" and when she is well up in the air, toss down the lure, which until then should be concealed, and ten to one but the hawk will immediately come down upon it with the rapidity of an arrow; and a more beautiful sight than the swoop of a hawk from a great height I do not know.

To make her kill her game, you must at first let her fly at a pigeon, or other bird, with its wings partially cut, so as to ensure the hawk against failure at the commencement. After she has killed two or three birds in this way, she will probably kill any bird you may fly her at in a favourable country. But in this fine old sport the mere killing the game is almost a minor consideration. The flight, the soaring, and the rapid detection of, and descent upon, the lure, are in themselves most interesting and beautiful.

I am not sufficiently skilled in the science, even

if I had time and space, to attempt technically to describe or make others understand all that is required to constitute an accomplished falconer. The moulting of the falcons, their keeping, feeding, and training, must all be perfectly understood and carefully attended to; and although almost any person who has his time at his command may manage to keep a single hawk in good training and obedience, yet to carry out the amusement to any degree of perfection, a professed and skilful falconer must be engaged, whose sole and entire employment should be to attend to the health and education of the birds.

The training of falcons is much facilitated by the natural disposition of the bird, which is bold, confiding, and fearless; and these qualifications, assisted by the keen sense of hunger felt by all animals of prey, render their taming and education far more easy than would at first be supposed.

Next to the peregrine the merlin is the best hawk to train, being equally bold and fearless; and, although of so a small size, has courage enough to dash fearlessly when launched from the hand at whatever bird it may see on wing. A merlin belonging to a friend of mine would fiercely assail a blackcock. This hawk, too, is so beautiful and so finely formed, that a prettier pet cannot be found;

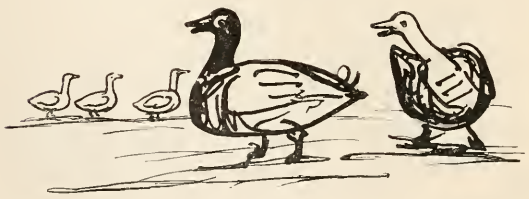
and when once a hawk is accustomed to the hood, the trouble of keeping her is very little.

The goshawk, although a fine handsome bird, has not the speed of any of the long-winged hawks, but she flies well at rabbits. I am told that the instantaneous manner in which this hawk kills a rabbit, by breaking its skull at a single blow, can only be understood by those who have seen it.

But I am wandering into a subject of which I know too little from personal experience to render my remarks of any value, and will only recommend those of my readers who possess time and energy to procure a peregrine falcon in good health and perfect plumage (the latter point is most important), and then, with some treatise on hawking in one hand, try if he cannot soon train the hawk which sits hooded on his other. With a fair share of temper, patience, and careful observation, he will be sure to succeed.

The goshawk is the most rare kind in this country. The only place where I know of its breeding regularly is the forest of Darnaway; but I am told that they also breed in the large fir-woods near the Spey. The bright piercing eye of the goshawk has a peculiarly savage and cruel expression, without the fine bold open look of the peregrine. At this season that singular hawk, the

osprey, is sometimes seen soaring, with its kestrel-like flight, along the course of the river. I occasionally see one hovering over the lower pools; but, in general, this bird is seen only *in transitu* from one side of the country to the other. The golden eagle, too, passes on his way at this season from north to south, frequently attended by a rabble rout of gray crows, who, when they have pursued the kingly bird for a certain distance, give up the chase, which is immediately taken up by a fresh band, who in their turn pass him over to new assailants. It would appear that each set follows him as long as he is within what seems their own especial district, like country constables passing on a sturdy vagrant from one parish to another.



Entrance to Bay of Cromarty.

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CHAPTER XXII.

OCTOBER.—PART II.

A SEA-SIDE WALK IN OCTOBER.

Beauty of a fine October morning—Departure and arrival of Birds—A walk along the Coast—The Goosander—Golden Eye and Morillon—Plovers—Widgeon; habits of in feeding; occasionally breed in Scotland—Sands of the Bay—Flounders—Herons—Curlews, Peewits, etc.—Oyster-birds—Mussel Scarps—Sea View—Longtails—Mallards—Velvet Ducks; mode of feeding—Rabbits and Foxes—Formation of the Sandhills; remains of antiquity found in them—Seals—Salmon-fishers—Old Man catching Flounders—Swans—Unauthorised Fox-chase—Black Game—Roe.

CHARMING to every sense is the first return of spring: but quite as enjoyable is a fine dry autumn day, and far more invigorating is the first frosty morning than the breath of the most balmy spring breeze that ever gave life to bird or butterfly. In this part of the island, too, spring is at best but a capricious and uncertain beauty, and in the course of four-and-twenty hours one is burnt by an almost tropical sun, and cut in twain by an east wind which seems to have been born and bred in the heart of an iceberg.

Not so in autumn, or at any rate during the

early part of it. In October, the equinox being tolerably well over, and the more severe frosts of winter not yet set in, nothing can exceed the exhilarating feeling which comes with every breeze. How beautiful is the rising of the sun!—bright and red, it casts a splendour of colour, in every gradation of light and shade, on the rugged mountains of the west, whose summits, already capped with snow, have the hue and refulgence of enormous opals; the sun too rises at a proper gentlemanlike hour, so as to give every one a chance of admiring him on his first appearance, instead of hurrying into existence too early for most of the world to witness his young beauties.

From my earliest days I rejoiced more in autumn than in any other season. "Pomifer autumnus" calls forth in the schoolboy's mind a remembrance of apples and fruit, ripe and ruddy. In later years autumn (and October is undoubtedly the prime month of that season) fills us with thankfulness for the abundance and variety of the productions of the earth. As I wander now in the wilds and woods, by river and glade, on every side the changing foliage of the different trees displays an endless variety of beautiful colours. Every thicket and grove has its rich mixture of emerald green, bright brown, and different shades of gold and red.

Every day too has its interest in the eyes of the dweller on this coast, for the arrivals and departures of different birds are unintermitting. An infinite variety of wild-fowl come over from the north and north-east, while our summer visitants, such as the landrail, cuckoo, swallow, and most of the insect-eating birds, disappear. One of my most favourite walks is along the coast, beginning at the mouth of the river and following the shores of the bay till I reach the open firth; then after continuing along the beach for three or four miles, I return through the wild uncultivated ground which divides the sea-shore from the arable lands. At this season the variety of birds which are to be seen in the course of this walk is astonishing. Starting from home soon after sunrise, with a biscuit in my pocket, my gun or rifle on my arm, and my constant canine companion with me, I am independent for the day. Bright and bracing is the autumn morning; the robin sings joyously and fearlessly from the topmost twig of some rose-bush as I pass through the garden, whilst the thrushes and black-birds are busily employed in turning up the leaves which already begin to strew the walks as they search in conscious security for the gray snails, repaying in kind for the strawberries and cherries they have robbed

us of; and welcome are they to their share of fruit in the season of plenty.

The partridges, as I pass through the field, seem aware that I am not bent on slaughter, but on a quiet walk of observation; and instead of rising and flying off as I pass them, simply lower their heads till I am beyond them, and then begin feeding again on the stubbles.

From the pools at the end of the river a brace or two of teal and snipes, or perhaps of mallards rise, and probably one or two are bagged, as I make no scruple of shooting these birds of passage when they give me an opportunity.

Looking quietly over the bank of the river, I see a couple of goosanders fishing busily at the tail of a pool. They are not worth eating, and I do not just now want a specimen; so after watching them for a short time, as they fish for small trout, I walk on, leaving them unmolested. If however I show any portion of my figure above the bank, their quick eye detects me, and after gazing for half a minute with erect neck, they fly off; at first flapping the surface of the water, or almost running along it; and then gradually rising, wend their way to a few pools higher up the river, where alighting they re-commence their fishing.

The golden-eye duck and the morillon also are frequently seen diving for shell-fish and weed in the deep quiet pools, but never fishing in the shallow parts of the river like the goosander.

The peewits do not leave us till quite the end of October, and during most of the month are in immense numbers on the sands near the mouth of the river. In the dusk of the evening they as well as the golden plover leave the sands, and take to the fields in search of worms and snails, generally frequenting the ploughed land or the grass-fields. As I pass along the shore of the bay, large flocks of widgeon fly to and fro as the ebb-tide leaves uncovered the small grassy island and banks. Unlike the mallard and teal, both which are night-feeding birds, the widgeon feeds at any hour of the day or night indiscriminately, not waiting for the dusk to commence their search for food, but grazing like geese on the grass whenever they can get at it. Although towards the end of winter the shyest of all water-fowl, the widgeon, at this season, owing to their not having been persecuted and fired at, may be easily approached, and with a little care may be closely watched as they swim to and fro from bank to bank; sometimes landing, and at other times cropping the grass as they swim along the edge. If a pair of mallards is amongst the flock,

the drake's green head is soon seen to rise up above the rest, as his watchfulness is seldom long deceived; with low quacking he warns his mate, and the two then rise, giving an alarm to the widgeon. The latter, after one or two rapid wheels in the air, return to their feeding-ground, but the mallards fly off to a considerable distance before they stop. 'Tis as well to make the widgeon pay tribute, so creeping to the nearest part of the bank I wait till a flock has approached within shot and in close rank, and giving them both barrels four or five drop. If any are winged my dog has a tolerably hard chase; for no bird dives more quickly than the widgeon: and they invariably make directly for the deep water, taking long dives, and only showing the top of their head when they are obliged to come up to breathe. Both male and female have the same sober plumage at this season; nor are the drakes in full beauty till January. I shot a brace of widgeon on the 8th of September this year, which is a month before their usual time of arrival. A flock of eight passed over my head, nearly a quarter of a mile from the sea, and I killed two of them—one apparently a young, and the other an old bird. I am inclined to think that they had been hatched in this part of the country. Although they leave us regularly in the spring, I have been told by an old poacher that he

has no doubt a pair or two, probably wounded birds, remain about some of the unfrequented lochs and breed, as he says that he has occasionally seen widgeon in summer in one or two places in the neighbourhood, but that this is rare. As my informant has a *very accurate* acquaintance with most birds, I believe his account to be correct. The widgeon that I saw on the 8th of September had very much the appearance of a brood which had been hatched near at hand, one of the birds not having arrived at that fulness and hardness of plumage that would enable it to have made a long aerial voyage. In Sutherland they breed every year.

I have a long walk before me, and bright as an October day is, the sun does not give us many hours of his company, but seems to be in a great hurry to hide his glorious head behind the snowy peaks of Inverness-shire.

In crossing the sands of the bay in order to arrive at the neck of sandy ground that divides it from the main sea, there are many runs of water to be waded, some caused by the river itself, which branches out into numerous small streams which intersect the sands, and some made by two good-sized brooks which empty themselves into the bay. In all these streams there are innumerable flounders, large and small, which dart as quick as lightning from under

your feet. Their chief motive power seems to lie in their broad tails, with which they propel themselves along at a wonderful rate ; then suddenly stopping, they in an instant bury themselves in the sand; and it is only a very sharp eye that can detect the exact spot where they are by observing their outline faintly marked on the sand in which they are ensconced : sometimes also their two prominent eyes may be discovered in addition to their outline.

It is a favourite amusement with my boys in the summer to hunt and spear the flounders which remain at low water in the pools and runs of water in the bay. On a calm day, by wading to where the water is a foot or two in depth, they kill, with the assistance of a long light spear, a basketful of good-sized fish.

When a flounder is taken out of the water and laid on the moist sands, by a peculiar lateral motion of his fins he buries himself as quickly as if still in his own element.

The large gulls keep up a system of surveillance over all the calm pools at low water, hovering over them, and pouncing down like hawks on any fish which may be left in them. As the tide ebbs, numbers of herons, also, come down to the water's edge, and keeping up step by step with the receding tide, watch for any fish or marine animal that may suit

their appetite. It is amusing to observe these birds as they stride slowly and deliberately in knee-deep water, with necks outstretched, intent on their prey, their gray shadowy figures looking more like withered sticks than living creatures.

As for curlews, peewits, sandpipers, et id genus omne, their numbers in the bay are countless. Regularly as the tide begins to ebb do thousands of these birds leave the higher banks of sand and shingle on which they have been resting, and betake themselves to the wet sands in search of their food; and immense must be the supply which every tide throws up, or leaves exposed, to afford provision to them all. Small shell-fish, shrimps, sea-worms, and other insects form this wondrous abundance. Every bird too, out of those countless flocks, is not only in good order, but is covered with fat, showing how well the supply is proportioned to the demand; indeed, in the case of all wild-birds, it is observable that they are invariably plump and well-conditioned, unless prevented by some wound or injury from foraging for themselves.

On the mussel scarps are immense flocks of oyster-catchers, brilliant with their black and white plumage, and bright red bill, and a truly formidable weapon must that bill be to mussel or cockle; it is long and powerful, with a sharp point as hard as

ivory, which driven in by the full strength of the bird's head and neck, must penetrate like a wedge into the shell of the strongest shell-fish found on these shores.

Beautiful, surpassingly beautiful, is the view before me, as I rest myself on a height of the sand-hills facing towards the north. The bright and calm sea close at hand, and the variously-shaped and variously-coloured cliffs and rocks of Cromarty and Ross-shire, at a distance in reality of twelve or fifteen miles, but which, as the sun shines full upon them, appear to be very much nearer, and all these are backed by mountains of every form and outline. but of a uniform deep blue tipped with white peaks. The sea as smooth as a mirror except where some sea-fowl suddenly splashes down into the water, making a few silvery circles, which soon disappear. Every here and there is a small flock of the long-tailed duck, diving and sporting in the sea, and uttering their strange but musical cry as they chase each other, swimming rapidly in small circles or taking short flights close above the surface; the whole flock dropping all at once into the water as if shot, not alighting gradually like the mallard and other ducks.

The heavy but handsome velvet ducks ride quietly on the sea in small companies, at the distance of about two hundred yards from the shore,

apparently keeping over some ridge of sand or other feeding-ground, down to which they are continually diving. These birds drift along with the tide till it has carried them beyond the place where they feed; then they rise, and fly back for some distance, looking more like blackcocks than ducks, and dropping again into the water, they continue their diving till the tide has drifted them beyond the end of the feeding-ground; and this they do again and again.

The rabbits which inhabit these sandhills are certainly larger and heavier than those living in the more cultivated country, though their food must consist almost entirely of dry bent, with the variety of a little sea-weed and the furze bushes, which they eat into numerous shapes, like foot-stools, ottomans, etc.

Foxes almost as tall and powerful as greyhounds frequent this desert region; and their fresh tracks are seen after every tide close to the sea-shore, whither they have been in search of cast-up fish, wounded wild-fowl, and such like.

I never pass over these sand-hills without endeavouring to suggest to myself some new theory respecting their origin, and what was the state of the country which they now cover over. That beneath the accumulation of sand there has once been a range of fertile fields cannot be doubted, as

in different places are seen furrows and other well-defined traces of cultivated land; yet no account exists of the destruction of these fields by the inroad of the sand; evidently the change was accomplished suddenly. In many parts of this sandy region there are distinct marks of rushing waters; ridges of both sand and shingle are cast up in a manner which could only have been effected by some tremendous rush of water; and strange pyramids of stones also are heaped up in several places, to all appearance by the same agency.

Few remains of antiquity have ever been found here; indeed, it is rarely these sands are trodden by any foot save that of some poacher in search of rabbits. I have, however, seen a most curious bracelet-like ornament which was found here. It is made of fine bronze, in the shape of a snake, which, it has been supposed, had a head at each extremity, formed of some precious stone; these, however, are lost, the fastenings having corroded. In shape this relic appeared to me to resemble one of the bands which bound together the fasces carried by a Roman lictor. On further examination it has, I believe, been ascertained that the bronze must have encircled some ornament or weapon of wood, which has rotted away, leaving nothing but the more durable metal.

It has twice happened to me to find human skeletons, or rather the remains of skeletons, lying on the sand, laid bare by some drifting wind, or half disinterred by the subterraneous proceedings of the rabbits. In both cases the remains were evidently of great antiquity, but had been preserved by the dry sand.

Those curiously carved pieces of flint called elf-arrows are not uncommon in some parts of the sandhills.

On one part of the sands, which forms a peninsula at low water, but an island when it is high, I perhaps discover two or three seals lying. Clumsy looking as they are, at the slightest alarm they scuffle off with great rapidity into the water. Once there they feel secure, and rising at a short distance from the shore, they take a good look at the intruder on their domain. Ugly and misshapen as a seal appears on land, he is when in the water by no means an unsightly-looking animal; and he floats and dives with a quiet rapidity which appears marvellous to the looker-on. You see a seal's head appear above the water; and you sit down half concealed, with ready rifle, to wait his reappearance. In a minute or two you are suddenly startled by its rising quietly in quite a different direction; and after gazing intently at you for a few moments with

its dark, mild-looking eyes, the sleek, shining head disappears again below the surface without making a ripple on the water, just as you have screwed yourself round, and are about to touch the trigger of your rifle, leaving you almost in doubt as to whether it is a seal or a mermaid. The Highlanders, however, are by no means prepossessed in favour of the good looks of a seal, or "sealgh," as they pronounce the word. "You are nothing but a sealgh" is a term of reproach which, when given by one fishwoman to another, is considered the direct insult, and a climax to every known term of abuse.

It is curious to observe the seals resting on some shallow, with only their heads above the water, and their noses elongated into a proboscis-like shape. They will frequently lie in this manner for hours together, until the return of the tide either floats them off their resting-place, or some other cause induces them to shift their quarters. The greatest drawback in most localities to shooting seals is the difficulty of getting the animal when killed. Tenacious of life to a surprising degree, a seal, unless shot through the head, escapes to the water, however severely wounded he may be, and, sinking to the bottom, is lost to the sportsman. When shot through the head, he struggles for perhaps a minute on the surface, and then sinks like a stone

to the bottom. A strong courageous retriever sometimes succeeds in towing a dead seal ashore, if he can reach him before he sinks, and has the good luck or judgment to take hold of one of the animal's feet, or "flippers," the only part which the dog can get into his mouth.

A seal has a very acute scent, and can never be approached from the windward. I conceive that their eyesight is less perfect; at any rate they are endowed with a certain dangerous curiosity which makes them anxious to approach and reconnoitre any object which they may have seen at a little distance, and do not quite understand. I have seen a seal swim up to within twenty yards of a dog on the shore, for the purpose apparently of examining him, as some unknown animal. Music, too, or any uncommon or loud noise attracts them; and they will follow for a considerable distance the course of a boat in which any loud musical instrument is played, putting up their heads, and listening with great eagerness to the unknown strains. I have even seen them approach boldly to the shore, where a bagpiper was playing, and continue to swim off and on at a hundred yards' distance.

Notwithstanding their wariness and the difficulty of capturing them, seals are gradually diminishing in number, and will soon disappear from our

coasts. This is owing chiefly to the constant warfare carried on against them by the salmon-fishers, who either destroy them or frighten them away as far as they can from their fishing stations.

On the neck of land at which we have now arrived there is a hut inhabited during the season by a couple of salmon-fishers, whose business it is to attend to the stake-net, which stretches out from near their hut into the sea. A lonely life these men must lead, from March to September, varied only by visits from or to their comrades, who are stationed at the depôt of ice at Findhorn, where all the fish caught are sent to be kept till a sufficient quantity is ready to load one of their quick-sailing vessels for London. But if their life is lonely it is not idle, as the exposed situation of their nets renders them liable to constant injury from wind and sea. At every low tide the men scramble and wade to the end or trap part of the net to take out the fish which have been caught, and to scrape off the net the quantity of sea-weed that has adhered to it during the last tide. Although they do not always find salmon, they are seldom so unlucky as not to catch a number of goodly-sized flounders, which fall to the share of the fishermen themselves; and perhaps once or twice in the season a young seal gets entangled and puzzled in the windings of the

net, and is drowned in it. More frequently, however, the twine is damaged and torn by the larger seals, who are too strong and cunning to be so easily caught.

Frequently on this barren peninsula I have fallen in with a small colony of field-mice. They are in shape like the common large-headed and short-tailed mouse, which is so destructive in gardens, but of a brighter and lighter colour. These little animals must live on the seeds of the bent and on such dead fish as they may fall in with.

The brent goose is not a constant visitor here in the winter. This bird, though very numerous in the Cromarty Firth, does not find in this part of the coast the particular kind of sea-grass on which it feeds. There are generally, however, a small company of these geese about the basin. A few white-fronted geese are constantly here from October to April or May, living either in the lonely mosses near the sea, or about the sands. Of other wild-geese we have no large flocks, except during the time of sowing the oats, when bean-geese arrive in great numbers.

This bay, like that of Findhorn, is always swarming with *waders* of every description, from the curlew to the redshank, and from the smallest kind of sandpiper to the old man we see yonder, who is

wading mid-leg deep in the tide, keeping even pace with the water as it flows in to fill the basin. His occupation was for some time a mystery to me, till approaching him, I saw that he had a singular kind of creel slung to his neck, and a long clumsy-looking kind of trident in his hand. Walking slowly backwards, but still keeping in two-foot water, with poised weapon and steady eye he watches for the flounders which come in with every tide. When he sees one, down goes his spear; and the unlucky fish is hoisted into the air, and then deposited in the creel.

I waited until, having either filled his basket, or being driven to land by the increased depth of the tide, the old man quitted the water. He either had not noticed me or did not choose to do so before he landed. When I accosted him by asking him what luck he had had, I got at first rather a grunt than an answer, as he seemed in no very communicative mood; but having refreshed himself by a spoonful of snuff, which he crammed into his nose with a little wooden kind of ladle, he told me that he "had na got muckle *vennison* the morn," adding that he "did na ken what had driven the *beasts* out of the bay of late;" venison, or, as he pronounced it, "ven-ni-son," meaning in this country any eatable creature, fish, flesh, or fowl. The old fellow

seemed of a most bilious and irritable temperament; and I believe had I not won him over by dint of whisky and fair words, he would have laid his bad success in flounder catching to my shooting wild-fowl in the bay. As it was, he gradually became tolerably gracious, and told me many marvellous stories of the good old time, when salmon-fishers were fewer and seals more plentiful; so much so, that, according to his account, every tide left numbers of these now rare animals in the pools of water in the bay; and a "puir man wha wanted a drop oil or bit seal-skin had only to go down at low water to the pools, and he could get a sealgh as sune as I can get a fluke in these days." Since this colloquy I and the old flounder-fisher have always been on tolerable terms.

The sea in this bay, as well as in other similar ones on the coast, runs in so rapidly that, without keeping a good look-out, there is a chance of being surrounded by the water, and detained till an hour or two after the tide begins to ebb again, which in these short autumn days would be inconvenient, as I am now at least six miles from home, a great part of which distance is over the roughest piece of moss and heather that I know, full, too, of concealed holes treacherously covered over with vegetation.

The first flock of swans which I have seen this season are just arriving in a long undulating line. As they come over the sands where they will probably rest for the night, the whole company sets up a simultaneous concert of trumpet-like cries; and after one or two wheels round the place, light down on the sand, and immediately commence pluming themselves and putting their feathers in order, after their long and weary flight from the wild morasses of the north. After a short dressing of feathers and resting a few minutes, the whole beautiful flock stretch their wings again, and rise gradually into the air, but to no great height, their pinions sounding loud as they flap along the shallow water before getting well on wing. They then fly off, led by instinct or the experience of former years, to where a small stream runs into the bay, and where its waters have not yet mingled with the salt sea. Here they alight, and drink and splash about to their hearts' content. This done, they waddle out of the stream, and after a little stretching of wings and arranging of plumage, standing in a long row, dispose themselves to rest, every bird with her head and long neck laid on her back, with the exception of one unfortunate individual, who by a well-understood arrangement stands with erect neck and watchful eye to guard his sleeping companions.

They have, however, a proper sense of justice, and relieve guard regularly, like a well-disciplined garrison. I would willingly disturb their rest with a charge of swan-shot, could I get within range, but not being able so to do, I must needs leave the noble-looking birds to rest in peace. When I get up from the place where I was sitting to watch them, the sentinal gives a low cry of alarm, which makes the whole rank lift their heads for a moment; but seeing that they are out of danger, and that instead of approaching them I am walking in the contrary direction, they all dispose themselves again to rest, with the exception of their watchful sentry. In the morning, at daybreak, they will all be feeding in the shallow lakes in the neighbourhood, led there by some old bird who has made more than one journey to this country before now. Wistfully my dog watches the snow-white flock; but the evening is coming on, and we must leave them.

A desert of moss, heather, and stunted fir-trees, which takes an hour to walk through, affords little worthy of note, with the exception of that fine fellow of a fox who, as we pass on, surveys us from a hillock well out of reach. The gray crows flying and croaking over his head first called my attention to him. Nothing is to be seen now but the top of his head and the tips of his ears, as he lowers him-

self down gradually and quietly the moment he sees me look in his direction. But my dog has got the scent; and off he goes in a vain pursuit. Tractable and well broken as he is with regard to game, no sooner does he perceive the inciting odour of a fox or otter, than, heedless of call or threat, he is off in pursuit. Look now! away goes the fox at a quick but easy gallop, through the swamp, with his tail (*Anglicè* brush) well up in the air. A fox is always a great dandy about his brush; and keeps it free from wet and dirt as long as he possibly can: a sure sign of poor Reynard beginning to feel distressed is his brush appearing soiled and blackened. Ah! the dog has got on his scent again, and begins to press hard on his hated foe; but as I well know he has not the slightest chance against the light-heeled fox, who is always in racing condition, whereas the retriever, with his curly coat and good living, will be blown before he has run a mile. I continue my walk. Presently the dog returns panting like a porpoise; and conscious of his irregular conduct, before he takes his usual place at my side, stops behind a little while, wagging his tail, and grinning in the most coaxing manner imaginable, till he has examined my face with that skill in physiognomy which all dogs possess; then seeing that I cannot help smiling at him,

he jumps boldly up to me, knowing that he is forgiven.

Occasionally a blackcock flies past us. These birds, a considerable number of which frequent this wild region, sleep every night in the highest and roughest heather they can find, in order to guard against the attacks of the fox, who in his hunting excursions seldom walks over that kind of ground, preferring beaten tracks, or the edges of pools or marshes, along which he can walk unheard and easily, till his acute nose warns him of the vicinity of some prey; whereas the strong and large heather in which blackcocks roost cannot be walked over quietly and comfortably by an animal whose legs are so short as those of a fox. The gray hens stand a much worse chance. Led by their maternal instinct to build their nests near the edges of the smoother grounds, where their young, when hatched, can run about, they are so much exposed to the attack of the foxes that scarcely one is left, and before long the breed in this part of the country will be quite worn out.

Up to his knees in a swamp stands a beautiful roebuck, feeding quickly and hungrily on the coarse grasses which grow there; whilst half way up the brae a doe and her fawn are nibbling the faded leaves off a wild-rose bush. By a little manage-

ment I could easily get within thirty yards of them, but I prefer watching them a little while with my glass. The buck has got the wind of me now, and starting up, looks quickly round, and then bounds up the steep brae to where the doe and fawn are standing, and after the whole party have halted on the top for a minute to reconnoitre me, they all bound off again into the densest part of the thicket.

As I approach home, and the evening comes on, different small flocks of wild-ducks pass with whistling pinion over my head, on their way to some well-known stubble. The barley-fields appear to be their favourite feeding ground at this season, probably because there is always more barley left on the ground than any other kind of grain.

The ferryman at the river where I pass tells me that he "is thinking that I have had a long travel, but that I have not got much *ven-ni-son*." In both surmises he is not far wrong, but I have enjoyed my long and rough walk as much—ay, and much more—than I should have done the best battue in Norfolk, or the best day's grouse-shooting in Perthshire. But it is time I should finish my chapter: we all become prosy when talking of our favourite pursuits.

> "Navita de ventis, de tauris narrat arator,
> Enumerat miles vulnera, pastor oves:"

And when I once get fairly launched on the subject of wild-ducks and roebucks, mountains and floods, the honest truth is that I know not when to stop, and must, I fear, frequently exhaust the patience of the most indulgent reader.

CHAPTER XXIII.

NOVEMBER.

The Snow Bunting—Regularity of appearance—Tomtit and Thrushes; worthy of protection—The Water Ousel—Trout—Otters; their defence of their young—Otter-hunting—Habits of Otters—Seals; power of remaining under water; habits of; decrease of—Wild-swans—Plovers, etc.—Dun Divers—Hares.

NOVEMBER, month though it be of cold winds and sleet, is generally ushered in by flocks of that beautiful little bird the snow bunting. For three successive years I have first seen this winter visitor on the first of November, which is another instance of the regularity of birds in their migrations. Scarcely any two of the snow buntings are quite alike. In the first flocks that come there are only a few which are light-coloured, but as the snow and frost increase the white birds become more numerous. I do not know whether they arrive during the night, but I have constantly heard their note after it has been quite dark, the birds being at the time on wing; and this sometimes occurs several hours after nightfall.

A beautiful little blue tomtit has taken up his

abode voluntarily in the drawing-room. It would seem that at first he was attracted by the few house flies who at this season crawl slowly about the windows. These he was most active in searching for and catching, inserting his little bill into every corner and crevice, and detecting every fly which had escaped the brush of the housemaid. He soon, however, with increased boldness, came down to pick up crumbs, which the children placed for him close to me on the table. From his activity and perseverance in exterminating flies, this bird appears well worthy of protection.

The thrushes, and blackbirds too, earn the favour of the gardener by their constant destruction of snails, in search of which, at this season, they are all day busily employed in turning over the dead leaves under the garden walls, and at the bottom of the hedges. My experience convinces me that there are few of the common birds whose perseverance in destroying grubs, caterpillars, etc., for at least nine months of the year, does not amply repay the mischief done by them in eating cherries and seeds during the remaining three. It is difficult, however, to persuade the farmer to look on rooks and wood-pigeons as his friends, when he sees them in flocks on the nearly ripe wheat-field, on the produce of which he mainly depends for paying

his rent. Nevertheless, were he to examine the crops of any of these wild-birds, and see what they were filled with during three-fourths of the year, he would find that they fully recompense him for all the grain they devour. Undoubtedly a considerable quantity of newly-sown wheat is eaten by different birds. Sea-gulls, amongst others, seem to swallow the grain indiscriminately with the grubs and worms turned up by the harrows; and large flocks of greenfinches and buntings are busily occupied in searching for whatever corn is not well covered over. The wild-ducks, too, come at night to shovel up what remains in the furrows.

This is the season at which partridges migrate from the high grounds to the cultivated fields. Fresh unbroken coveys frequently appear near the lower part of the river: sometimes they come in flocks of twenty or thirty. In damp weather these birds seek the dry and warm ground on the sandy places about the lower islands, and appear entirely to desert the fields excepting at feeding time.

The water-ousel enlivens the burn by its low but sweet note, uttered either while perched on its accustomed stone in the midst of a rapid, or whilst floating with open wings on the surface of a quiet pool—a method of proceeding quite peculiar to this interesting little bird. The salmon-fishers wage

war to the knife with the water-ousel; and, indeed, I have no doubt that it is not a little destructive to the spawning beds, although I am inclined to think that it attacks the trout spawn more frequently than that of the salmon. If so, this bird also does fully as much good as harm; the most deadly enemy to salmon being the larger burn trout, whose favourite food is, undoubtedly, the ova of the salmon.

The trout now betake themselves to every running stream, working their way up the narrowest rills, in order to place their spawn.

At this time of year the otters are constant visitors at the lower parts of the river, searching for flounders, eels, etc. There are certain small hillocks which every otter as he passes appears to examine in order to find the trace of any chance stranger of his own species. There are now two old ones and two young ones hunting the lower part of the Findhorn; their presence is always easily detected by their tracks on the sandy banks, as they constantly leave the water on their return up the stream to the quiet hiding-places where they pass the day.

When accompanied by her young the female otter throws aside her usual shyness, and is ready to do stout battle in their behalf. A Highlander

of my acquaintance happened to find a couple of young otters in a hollow bank, and having made prisoners of them, was carrying them home in triumph in his plaid. The old otter, however, attracted by their cries, left the river, and so determinedly opposed his carrying them away, by placing herself directly in his path, and blowing and hissing like a cat at him, with tail and bristles erect, that the man, although as stout a fellow as ever trod on heather, was glad to give up one of the young ones, and make his escape with the other while the mother was occupied in assuring herself of the safe condition of the one she had rescued.

When caught young no animal is more easily tamed than the otter; and it will soon learn to fish for its master. In educating all wild animals, however, it is absolutely necessary that the pupil should live almost constantly with its teacher, so as to become perfectly familiarised with his voice and presence.

Even when young the otter is a most powerful and severe biter, closing its jaws with the strength of a vice on whatever it seizes. Every courageous dog who has once battled with an otter, retains ever afterwards the most eager and violent animosity against the animal. The scent of an otter renders my otherwise most tractable retriever quite uncon-

trollable. The remembrance of former bites and wounds seems to drive him frantic, and no sooner does he come across the fresh track of one than he immediately throws aside all control, and is off *ventre à terre* in pursuit.

It is not often that an otter commits himself so far as to be found during the daytime in any situation where he can be approached; but one day in this month I was out for a quiet walk with my retriever, looking at some wide drains and small pools for wild-ducks, when suddenly the dog went off, nose to the ground, in so eager a manner that I knew nothing but a fox or an otter could have been the cause of his excitement; and I soon found in a nearly dry open drain the quite recent track of a very large otter. For a long time he would not show himself, till suddenly the dog rushed into a thick juniper bush, and the next moment dog and otter were tumbling over each other into a deep black pool. The otter escaped from the dog in the water; but the hole being only about six feet square, though deep, I took my retriever out by main force, and waited for the water to become clear again. When it did so, I looked for the otter for some time in vain, till at last, having stooped down close to the pool, I was startled by seeing his face within a few inches of

my own, his body being almost entirely concealed by the overhanging bank. I tried to make him leave his cover, but in vain; so I sent the dog in again, who soon found him; and after a short scuffle, the otter left the pool, and went off along a wide but shallow drain, and there the battle began again. The dog, although unable to master the otter, who was one of the largest size, managed to prevent his escape, and at last I contrived to end the contest by a well-applied blow from a piece of railing which I had picked up.

Otter skins, when well dressed by a skilful furrier, make a valuable addition to a lady's winter wardrobe, the under fur being peculiarly soft, silky, and of a rich brown colour.

I am daily more and more convinced that the otter is by no means so great an enemy to salmon as he is supposed to be; his general food being trout, eels, and flounders; although, of course, when a salmon comes in his way, he is sufficiently an epicure not to refuse taking it. An otter seldom kills a salmon without leaving enough of the fish to betray him, as most people who live near salmon rivers know full well; but the remains of the trout and eels which he kills are not so conspicuous. I am borne out in this opinion by Mr. Young, the manager of the Duke of Sutherland's salmon-fish-

ings, whose opportunities of observation, and acuteness in judging on all points connected with subjects of this kind, ought to make his favourable opinion of otters equivalent to a verdict of acquittal whenever they are accused of being great salmon destroyers.

The seal, on the contrary, is a constant and most annoying enemy to the salmon-fisher, breaking the stake-nets, and enabling the fish who are already enclosed to escape. Besides which a seal, hunting along the shore near the nets, drives the salmon out into the deeper water, beyond the reach of the fisherman. The seal is also a much more rapid swimmer than the otter, and I have no doubt that he can take a salmon by actual speed in the open sea, although he cunningly prefers catching his prey with the assistance of the stake-nets, when he has comparatively little trouble.

I have frequently been told that the seal cannot remain under water for more than a quarter of an hour without coming to the surface to breathe. I am, however, confident that this is not the case, and that he can continue for hours under the water when lying undisturbed and at rest. If caught and entangled in a net he is soon exhausted and drowned.

I was assured by a man who was constantly in

pursuit of seals, that one day, having found a very young one left by its mother on the rocks, near Lossiemouth, he put it into a deep round hole full of water left by the receding tide. For two hours, during which he waited, expecting to see the old female come in with the flow of the tide, the little animal remained, as he expressed it, "like a stone" at the bottom of the water, without moving or coming to the surface to breathe. He then took it out, and found it as well and lively as ever; and on turning it loose into the sea it at once began swimming about with some other young ones.

In a creek of the sea, where I sometimes watch for seals, I have seen two or three come in with the flow of the tide. After playing about for a short time they have disappeared under the water, and have not shown themselves again till the receding tide has warned them that it was time to leave the place. From the situation they were in, and the calmness of the water, the seals could scarcely have put up their noses to breathe without my having seen them. Apparently they sunk to the bottom in a certain part of the bay, in order to be at rest, and remained there till the ebb was pretty far advanced, when they reappeared in the same place where I had lost sight of them, perhaps, some hours before. It was a curious and amusing sight to see

these great creatures swim up within a few yards of the ambuscade which I had erected close to the narrow entrance where the tide came in to fill the bay. At thirty or forty yards distance I found it impossible to shoot a seal swimming if he had seen me and was watching my movements: my best chance always was when the animal, having turned away, presented the broad back of his head as a mark to my rifle. If I arrived at the place in time to do so, I put up some small object at a distance off, on the side of the inlet opposite to where I was concealed. This had the effect of distracting the attention of the animal from his real danger.

A flock of seals playing and fighting on a sandbank is one of the drollest sights which I know in this country. Their uncouth cries and movements are unlike anything else. In the Dornoch Firth and near Tain there are still great numbers of them, and every fine day they are in large flocks on the sandbanks; but near this part of the country they have been very much thinned off, and scarcely any are killed excepting by myself. My keeper tells me that when he was a boy their number was very great, and that the inhabitants of the place could always kill as many as they wanted for oil, and for their skins, picking out the largest of the herds and sparing the smaller ones; but, alas! cheap

guns and salmon-fisheries have combined to make them scarce. Formerly, also, in the pools left by the sea within the old bar of Findhorn, numbers of seals were left at every ebb of the tide, and the farmers occasionally went down and killed a few to supply themselves with oil for the winter.

Any unusual number of wild-fowl in the bay at this season generally prognosticates stormy weather or snow. On the 27th I saw nearly fifty wild-swans swimming and flying between this place and the town of Findhorn; and some large flocks of geese were passing over to the south. The next day the ground was covered with snow, an unusual occurrence at this season. Of these swans, one flock of six located themselves in the fresh-water lakes between this and Nairn, and the rest wended their way to the south. The Icelanders hail the appearance of the wild-swan in the same manner as we do that of the cuckoo or swallow, it being with them the foreteller of spring and genial weather, whilst here they are connected in our minds with storms and snow-clad fields.

The Loch of Spynie is another established wintering place of the wild-swan. A few years ago great numbers remained both in that loch and in Loch Lee during the whole winter. I know of no other

fresh-water lakes in this country where they now appear regularly. Near Invergordon numbers of swans feed with other wild-fowl on the sea-grass.

Late in the evening the golden plovers come in considerable numbers to the bare grass-fields to feed during the night; but when the ground is hardened by frost they resort to the sands at the ebb-tide, both by night and day. Whilst the tide is high, these birds fly up to the hills, resting on those places where the heather is short; and their instinct teaches them exactly when to leave the hills for the sands as soon as the sea has receded sufficiently; and yet their principal resting-place is fully five miles inland.

I have observed the same instinct in the female sheldrakes when sitting on their eggs. Although several feet underground they know to a moment when the tide has sufficiently ebbed, and then, and only then, do they leave their nest to snatch a hasty meal on the cockles, etc., which they find on the sands.

The frost and snow send all the mallards down from the hill lakes to the bay. I shot a bird exactly answering to Bewick's description of the dun diver, excepting that it was much smaller. Bewick describes his bird as twenty-seven inches in length. This was only twenty inches. It was apparently

quite full grown. I shot it whilst it was fishing in a small stream, and the bird had already swallowed twenty-five sticklebacks and one small eel. Its bright red bill is well adapted to hold any fish, however slippery, being supplied with the sharp teeth sloping inwards, which are peculiar to birds of this class.

Hares have a particular fancy for sitting near houses, undeterred by the noise of the men and dogs who may inhabit them. When found sitting, a hare sometimes seems fascinated in an extraordinary manner by the eye of a person looking at her. As long as you keep your eye fixed on that of the hare, and approach her from the front, she appears afraid to move, and, indeed, will sometimes allow herself to be taken up by the hand. A hare, when dogs are near her, is particularly unwilling to start from her form. In cover shooting many of the old and experienced hares steal off quietly the moment they hear the sound of dogs or beaters at one end of the wood; and thus their quick senses of hearing and smelling enable them to escape the guns, however numerous and however well placed. Shooters in wood pay too little attention to the direction of the wind. All small game, like deer, are most unwilling to face an enemy standing to windward of them; but keepers either expect, or

pretend to expect, that game will always go exactly ahead of the beaters, though the least observation ought to have taught them the contrary; for when once running game have discovered the scent of an enemy, they will never go in that direction, but will make their way back in spite of all the noise and exertions of the beaters.

CHAPTER XXIV.

DECEMBER.

Owls; destruction of Mice by them—Frogs—Snakes—Roebucks—Fondness of Birds for Sunshine—Loch of Spynie—Habits of Wild-fowl; rapidity of their flight—Retrievers—The Otter; shooting of, by night—Eley's Cartridges—Wild-swans—Accidents in Shooting—Variety of Country in Moray—Forres; public Walks of—Rabbits—Foxes—Immigration of Birds—Conclusion.

During the clear frosty nights of this month we hear the owls hooting for hours together in the old ash-trees around the house. Occasionally they used to be caught in the pole-traps set for hawks, but the poor fellows looked so pitiable as they sat upright, held by the legs, that I took down all these traps, which were set near the house. And the owl is far more a friend than an enemy to man: the mischief he does to game is very trifling; but the service he is of to the gardener, the farmer, and even to the planter of forest trees, by destroying rats and mice, is incalculable. I have a great liking, too, for the quaint, old-fashioned looking bird, and by no means believe him to be the

"Ignavus bubo, dirum mortalibus omen."

My kitchen-garden was overrun with mice, who not only ate up peas and other seeds, but also nibbled and destroyed great numbers of peaches: but since I have had a tame owl in the garden, the mice have disappeared entirely, having been destroyed by him and his relations and friends who visit him at night. Sometimes an owl, either the common brown one or else one of the long-eared kind, posts himself all day long bolt upright in one of the evergreens near the house. The small birds first point out his whereabouts, by their clamour and fluttering round him; but the owl sits quite unconcerned in the midst of the uproar, blinking his eyes and nodding his head as quietly as if in his accustomed sequestered thicket or hollow tree.

The long-eared owl, with his bright yellow eyes and hooked bill, has a most imp-like appearance when seen sitting motionless on the low branch of a tree or ivy-covered wall.

The chief food of owls are mice and birds, but they are also very fond of frogs. When an owl catches one of these animals, instead of swallowing it whole, as he does a mouse, he tears it to pieces, while still alive, in the most cruel manner, regardless of its shrill cries.

I have no doubt that were it not for their numerous enemies, such as birds of prey, crows, ravens,

rats, etc., frogs would increase to such a degree as to become a serious nuisance. The snake is another of the frog's devourers. It is a curious, although I cannot venture to say a pleasant sight, to see one of these reptiles attack and swallow a living frog, of a diameter four times as large as its own. After a frog has been pursued for a short time by a snake it suddenly seems to be fascinated by the bright sparkling eye of its enemy, and gives up all attempt at escape; then the snake, with a motion so rapid that the eye cannot keep pace with it, darts on its unhappy prey, generally seizing it by the hind-leg. There now commences a struggle for life and death. the frog clinging pertinaciously to any branch or projection which it can reach with its fore-legs; but all in vain; for the snake quietly but surely, by a kind of muscular contraction, or suction, gradually draws the frog into its mouth, its jaws expanding and stretching in the most extraordinary and inconceivable manner, in order to admit of the disproportioned mouthful.

I have little doubt that many birds and other animals are in reality fascinated by the fixed gaze of a snake, when they once come under the immediate influence of his eye. Their presence of mind and power of escape, or even of moving, seems entirely to desert them when their enemy is near them, and

they become so paralysed with fear, that the snake has nothing to do but to seize them. Any person who has seen one of our common snakes swallow a large frog will readily believe all accounts of deer being swallowed by the giant-serpent of the East.

Early in December the roebucks lose their horns. I have shot them during the first week of this month with the horns so loose that they have fallen off as the animal was carried home. They are, however, in as good or perhaps even better order for the table in December than at any other time.

The roe being very much disturbed by wood-cutters in most of our woods, keep to the wild rough extent of cover, too young for the axe, which lies between the upper country and the shore; there they live in tolerable security, in company with the foxes, black game, and wild-fowl which tenant the woods and swamps of that district. Occasionally, whilst I am woodcock-shooting, a roe affords a pleasant variety and weighty addition to the game-bag. All my dogs, whether pointers, spaniels, terriers, or retrievers, become very eager when on the scent of roe.

The blackcocks, like other birds, are very fond of catching the last evening rays of a winter's sun, and are always to be found in the afternoon on banks facing the west, or swinging, if there is no wind, on

the topmost branch of the small fir-trees. On the mountains, too, all birds, as the sun gets low, take to the slopes which face the west; whilst in the morning they betake themselves to the eastern banks and slopes to meet his rays. No bird or animal is to be found in the shade during the winter, unless it has flown there for shelter from some imminent danger.

This is very remarkable in the case of the golden plovers, who in the evening ascend from slope to slope as each becomes shaded by intervening heights, until they all are collected on the very last ridge which the sun shines upon. When this is no longer illuminated, and the sun is quite below the horizon, they betake themselves to their feeding-places near the sea-shore or elsewhere. Goats have the same habit.

There is no fresh-water lake which has so large a quantity of wild-fowl on it as the Loch of Spynie; and I do not know a more amusing sight than the movements and proceedings of the thousands of birds collected there during this season. All wild-fowl, from the swan to the teal, swarm on this lake; and it is most interesting to see the habits and manners of feeding and of passing their time of the different kinds, some feeding only by night and others moving about at all hours. On the approach

of night, however, the whole community becomes restless and on the move, and the place is alive with the flocks flying to and fro, all uttering their peculiar notes, and calling to each other, as they pass from one part of the loch to another. The mallards for the most part take to the fields in search of food. flying either in pairs or in small flocks of five or six. The widgeon keep in companies of ten or twelve, whistling constantly to each other as they fly to feed on the grassy edges of the lochs. The teal and some other birds feed chiefly on the mud-banks and shallows which abound in parts of this half-drained lake; and amongst the loose stones of the old castle of Spynie, which overlooks it, and where formerly proud ecclesiastics trod, the badger has now taken up his solitary dwelling.

The flight of wild-fowl in the evening is more rapid in reality than it appears to be; and I have seen many a good shot fairly puzzled by it, and unable to kill these birds at this period of the day with any certainty until practice had taught them the necessity of aiming well ahead. Another great requisite to success in wild-fowl shooting is a first-rate retriever, quick and sagacious in finding and bringing the killed and wounded birds from the swampy and grassy places in which they fall. Long shots ought never to be taken in the evening, as,

independently of the time lost in loading (during which operation, by the by, the birds always contrive to come over your head) you are sure to lose many which fly away wounded, to drop several hundred yards off, serving only to feed the foxes and crows, which always seem to be on the look-out for food near lakes and marshes.

Some retrievers have a most wonderful instinct in discovering whether a wounded bird is likely to fall; invariably marking down and finding them, without wasting their time and strength in vain pursuit of those which are able to escape.

Nothing is more trying to the constitution of a dog than this kind of shooting in the winter, when the poor animal spends his time either in paddling or swimming about in half-frozen water, or in shivering at his master's feet whilst waiting for a fresh shot. The master perhaps has waterproof boots and a warm jacket on, a pipe in his mouth, and a mouthful of brandy to keep him warm; while his poor dog has none of these accompanying comforts, and is made to sit motionless on the wet or frozen ground with the water freezing on his coat. For my own part I administer as much as I can to the comfort of my canine companion, by always carrying him some biscuits, and by giving him either my plaid or a game-bag to lie upon. It is amusing

enough to see the retriever wrapped in the plaid, with only his head out of it, watching eagerly for the appearance of a flock of widgeon or ducks, which he often sees before I do myself.

The best and most sagacious dog of this kind that I ever saw, and whose cunning and skill were unequalled, I sold to make room for a stronger retriever, who however never equalled his predecessor in sagacity and usefulness. I the less repented having parted with the dog, as he fell into the hands of a friend of mine, Captain Cumming, a most excellent shot and persevering wild-fowl shooter, who fully appreciated the good qualities of the animal. The Loch of Spynie belonging principally to this gentleman's family, he preserves the place strictly; and I do not know so successful a wild-fowl shooter—successful I mean in a gentlemanly and sportsmanlike manner—and with what I term *fair shooting*. With due deference to the followers of this sport, I cannot include under that denomination the punt and swivel-gun system. Amongst other objections to this kind of sport is the vast number of birds maimed, wounded, and left to perish miserably, or to feed crows and other vermin. Not even Colonel Hawker's amusing work on the subject reconciles me to this (proh pudor!) his favourite branch of sport.

In the snow I constantly see the tracks of weasels and stoats going for considerable distances along the edges of open ditches and streams, where they search not only for any birds which may be roosting on the grassy banks of the ditches, but also for eels and whatever fish they can make prey of.

The otters, too, puzzled by the accumulation of ice and frozen snow on the shallows, and about the mouth of the river, go for miles up any open ditch they can find; turning up the unfrozen mud in search of eels, and then rolling on the snow to clean themselves.

There are few animals whose scent is so attractive to dogs of all kinds as the otter; but it requires that they should have great experience in order to be sure of finding an otter, or of following with any certainty when started, so strange and well concealed are the nooks and corners of broken banks and roots under which it lies or takes refuge when hunted.

My old keeper has great delight in the pursuit of otters, and continually neglects his more legitimate duties for the sake of getting a midnight shot at one of these animals. Having carefully determined on the way from which the wind blows, and made himself sure that no eddy of air can carry his own scent towards the stream, the old man sits well concealed

under a projecting bank near some shallow ford, where he expects the otter will appear on his way up or down the burn. This plan seldom fails, and he not unfrequently makes his appearance in the morning with a dead otter in his hand, the result of many hours of patient watching in a winter's night, of which the disordered and somewhat bemudded appearance of his habiliments bears further witness. I cannot plead guilty of ever sending him on these expeditions. In the first place, I have no very deadly feud with the otters; and, in the next, I think that the old fellow would be better in his bed than squatting under a broken bank through a long winter's night.

Though not an advocate for Eley's cartridges for game-shooting, I use a great number of them against stronger animals, such as otters, foxes, and roe, and also for wild-fowl shooting of all kinds. In steady hands these cartridges undoubtedly do great execution amongst ducks and geese, but they are very apt to induce the sportsman to take shots which are too long and random, conceiving that no distance is too great for this kind of charge. That they very frequently do not open at all, or at any rate sufficiently soon, I have clearly ascertained; and I have often found in shooting roe and hares that the cartridge has passed through the animal

like a single ball. Every sportsman knows that this will not answer his purpose in general shooting; and, therefore, that Eley's cartridges should only be used in the most open places, and at strong birds and animals.

The wild-swans still remain feeding in the lakes, and seem to have completely made themselves at home; going lazily off to the bay when disturbed, but seldom taking the trouble to do so unless the particular loch which they frequent, and in which they feed, comes within the line of my beat for wild-ducks. When their territory is invaded they first collect in a close body, and after a short conference, flap along the water for some distance, and gradually rising fly across the sandhills with loud cries to the sea. Hundreds of ducks of all kinds constantly attend on the swans when feeding, to snatch at the water-grasses and weeds pulled up by the long-necked birds from the bottom of the shallow water—a proceeding the swans seem by no means to approve of, as they evidently have no wish to labour for the good of these active little pirates.

It has often occurred to me how perfectly helpless a man would be were he to lame himself during the distant and lonely wanderings on the mountain, which the pursuit of deer and wild-game sometimes leads him into; and I was forcibly reminded of

this by a curious accident which happened to myself in the woods of Altyre while roe-shooting this month.

The hounds were in pursuit of a roe; and I was partly occupied in listening to their joyous cry, and partly in admiring the beautiful light thrown by the low rays of the winter sun on the bright trunks of the fir-trees, contrasted as it was with the gloomy darkness of their foliage, when I heard the foot of a roe as it came towards me, *ventre à terre*. Taking a cool aim I sent a cartridge through the poor animal's head, who, of course, fell rolling over like a rabbit. I went up in order to bleed her, according to rule, when, just as I was knife in hand, I heard the hounds coming up in chase of another roe. I dropped the knife on the heather, and at that instant the dying roe gave an expiring plunge, as animals almost always do when shot in the head. Her hind foot struck the hilt of the couteau de chasse, driving it straight into my foot. Having, not without some little difficulty, drawn it out, I had next to cut off my shoe, when the blood came out like a jet d'eau. Making a tourniquet of my handkerchief and a bit of stick, I managed to stop the bleeding, not, however, before I began to feel a little faint. Then not waiting for my companions, who were at a distant part of the woods, I hobbled off to a forester's

house, where I rebound the cut, and having directed the man where to find the roe, and to tell the other shooters that I had left the woods, I made my way homewards as well as I could, and, luckily meeting on the road one of my servants exercising a pony, I got home without more inconvenience, but I had to pass many a long day upon a sofa. Had a similar accident happened on some of the wild and distant mountains of the country where I often shoot, I should probably not have been seen again, till the ravens and the storms of winter had left nothing but my bones. From such slight and trivial causes do accidents sometimes happen to remind us how helpless we all are.

In the low parts of Morayshire the snow seldom lies long, and consequently after every lengthened snow-storm there is a constant migration not only of wild-fowl of all kinds, but also of partridges and other game, who come down to the bay and shore from the higher parts of the district, where the ground is more completely covered with snow, the depth of which increases gradually as one recedes from the shore.

A more strikingly varied drive of twenty miles can scarcely be taken than from the Spey at Grantown down to Forres on the sea-side near the mouth of the Findhorn river. After emerging

from the woods of Castle Grant, in the immediate vicinity of the Spey, and that curiously-built place Grantown, with its wide street of houses, almost wholly inhabited by Grants, which appellation with every variety of Christian name is written at least on nine houses out of every ten, the traveller comes out on the extended flats and moors of the district round Brae Moray, where there is scarcely a sign of life, animal or human; excepting when a grouse rises from the edge of the road, or runs with comb and head erect a few yards into the heather, and then crouches till the intruder has passed by. There is, I admit, a turnpike house here, but it is a wretched-looking affair, and its tenant must live a life as solitary as a lighthouse-keeper. After several miles of this most dreary though not very elevated range, the road enters the woods and for a long distance passes through a succession or rather one continued tract of fine fir-trees. It goes through the beautiful grounds of Altyre, and along the banks of the most picturesque part of the Findhorn; and gradually descending it opens upon the rich fields and firth of Moray, with the mountains of Ross, Caithness, and Sutherland—a glorious range—in the background: a great and most pleasing change from the dreary brown moorland near Brae Moray. Having passed through this

long and varied tract of woodland, the road suddenly emerges into the rich open corn-land of the most fertile district in Scotland, near the bay of Findhorn, where the river, as if tired by its long and rapid course, gradually and slowly mixes itself with the salt water of the Moray Firth. By crossing the river near this spot, another very different kind of country is reached—the strange sandhills of Findhorn or Culbin. Thus, in a very few hours' drive as great a variety of country is passed through as could be found in any part of the island, each portion of which is characteristic and interesting.

Forres itself is one of the prettiest and cleanest little towns in the kingdom. The entrance from the river Findhorn is extremely picturesque; and the bright sparkling burn, with the public bleaching-green close to the town, always gives it a gay and lively appearance. The town magistrates, too, with public-spirited zeal, have laid out pleasure-grounds and walks on the wooded hill above the town, which, as regards the views which they command of rich cultivated land, are probably not surpassed by any in the kingdom.

During the time that the snow remained on the ground the rabbits in a wood near my house took to barking the fine old hollies, thus destroying trees

of a very great age, and of from eight to ten inches in diameter. Oaks also, of twenty years' growth, are frequently destroyed by these animals. In fact, wherever they once establish themselves they overrun the country and become a nuisance. In the sandhills of Culbin I admit that they can do but small mischief, there being in that region little else but bent, sea-weed, and furze-bushes. They thrive, however, on this food, and in spite of foxes and guns keep up their numbers sufficiently to afford plenty of sport. The foxes are numerous in the rough wild district which lies to the west of the sandhills, and hunt regularly for rabbits wherever they abound. From their tracks it is evident that two foxes constantly hunt together; and they take different sides of every hillock.

If a fox finds a rabbit at a sufficient distance from the cover, he catches it by fair running; but most of his prey he obtains by dint of the numberless stratagems which have earned for him a famous, or rather an infamous, reputation from time immemorial. From what I have myself seen of the cunning of the fox, I can believe almost any story of his power of deceiving and inveigling animals into his clutches. Nor does his countenance belie him; for handsome animal as he certainly is, his face is the very type and personification of cunning.

The cottagers who live near the woods are constantly complaining of the foxes, who steal their fowls frequently in broad daylight, carrying them off before the faces of the women, but never committing themselves in this way when the men are at home. From the quantity of débris of fowls, ducks, etc., which are strewed here and there near the abodes of these animals, the mischief they do in this way must be very great.

Cunning, however, as they are, I not unfrequently put them up while walking through the swamps. They lie, in fancied security, on some dry tuft of heather in the midst of the pools; and not expecting or being accustomed to be disturbed, they remain there until my retriever raises them close to my feet. One fine day, in the beginning of this month, when the sun was bright and warm, a setter who was with me made a very singular kind of point in the long heather, looking round at me with an air most expressive of "Come and see what I have here." As soon as I got near the dog made a rush into the rough heather, putting out a large dog fox, who had been napping or basking. The fox made a bolt almost between my legs to get at a hole near the place; but I stopped him with a charge of duck shot: the dog, though as steady as possible at all

game, pursued the fox full cry, and when he rolled over, worried and shook him, as a bull-dog would a cat.

December, in this part of the island, is seldom a very cold or boisterous month; our principal storms of snow and wind come with the new year. Frequently, indeed, there is no covering of snow on that part of the county which lies within the influence of the sea-air till February.

During the first days of snow and storm a constant immigration of larks takes place, these birds continuing to arrive from seaward during the whole day, and frequently they may be heard flying in after it is dark. They come flitting over in a constant straggling stream, not in compact flocks; and pitching on the first piece of ground which they find uncovered with snow, immediately begin searching for food, feeding indiscriminately on insects, small seeds, and even on turnip leaves, when nothing else can be found.

The wagtails frequent the sheepfolds near the shore, and keep up an active search for the insects which are found about these animals.

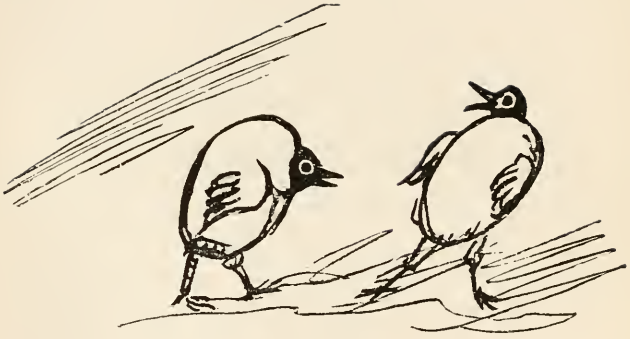
And now having brought my readers (if the patience of any of them has enabled them to follow

me so far) to the end of the year, and of my sojourn in Moray, I must say—Farewell.

I have aimed neither at book-making nor at giving a scientific description or arrangement of birds and other animals. All I wish is that my rough and irregularly put together notes may afford a few moments of amusement to the old; and to the young not amusement only, but perhaps an incitement to them to increase their knowledge of natural history, the study of which in all its branches renders interesting and full of enjoyment many a ramble and many an hour in the country which might otherwise be passed tediously and unprofitably. We all know that there is scarcely a foot of ground that is not tenanted by some living creature, which, though it may offer itself to our observation in the lowly shape of an insect or even a minute shell, is as perfect in all its features and parts, in its habits and instincts, and as demonstrative of the surpassing wisdom and power and goodness of the Creator, as the most gigantic quadruped which walks the earth.

Again, kind readers, Farewell!

DEER-STALKING.



Dead Stag and Eagles.

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DEER-STALKING.

CHAPTER XXV.

Deer-stalking; enjoyment of—Fine Stag; ill-luck in stalking; escapes of Stag; start in pursuit of him—View of Country—Roebucks—Hare and Marten—Tracks of Deer; find the Stag; death of—Meet the Shepherd—Cottage.

THOUGH we are all naturally gregarious animals, much pleasure is often derived from a lonely walk over mountain and moor, when, independent of the wishes or movements of any one else, we can go hither and thither as the objects or the fancy of the moment may lead us. In following up my sporting excursions I frequently prefer being alone, and independent of either friend or keeper; not from any disinclination to the society of my fellow-men—far from it—but from a liking to watch and observe the habits and proceedings of many of the living animals of the country. Now one's friend may become bored by being carried off from his shooting, and being hampered by the movements of another person whose attention for the time being

is taken up in following some bird or beast not included in the game-book, and therefore not deemed worthy of notice during the shooting season. If my own larder or that of my friend is in want of replenishing, I can fill it as well and quickly as most people; but at other times I like to take my shooting quietly. In deer-stalking the solitary sportsman has often great advantages, though his enjoyment of the sport is much enhanced by the thought that he has some friend, some "fidus Achates," to whom he can relate the incidents of the day, and who, following the same pursuits, will enjoy and appreciate the account of the pains and fatigues he has undergone before bringing down the noble animal whose horns he exhibits in triumph. Much of my deer-stalking time was spent alone, or at most with no companionship save that of an ancient and experienced Highlander, or a chance visitor—some travelling laird or sportsman—who was as glad to receive as I was to give provend and rest for himself and horses. From these circumstances I got into the habit of sketching off an account of my day's wanderings, when they had been of that kind that I felt I might say to myself "forsan et hæc olim meminisse juvabit."

I had more than once seen in a particular corrie, or not far from it, a remarkably fine stag: his horns,

though not peculiarly long, were heavy and large, with ten points well and evenly set on, of a dark colour, and the points as white as ivory. The animal himself was evidently of very great size and age, and in fine condition. He lived quite alone, and did not seem to associate with any of the other deer who frequented that district, although I once saw him rise and trot off, warned by the movement of a herd of hinds; and at another time he rose unexpectedly on my firing at two stags in a corrie: still on neither of these occasions, nor at any other time, did he appear to be lying in company with the other deer, although not above half a mile from them, nor did he join them in their flight when moved. Instead of this he invariably trotted off sulkily; and if I chanced to fall in with his track again, it was still solitary, and speeding in a direct course over bog and hill to some far off mountain glen or corrie. The shepherds, who generally gave me notice of any particularly fine stag they might see in their rounds, distinguished this one by a Gaelic name, signifying the big red stag, as, besides his other attributes, his colour was of a peculiarly bright red. Donald and I had made an unsuccessful raid or two into the red stag's country, some unforeseen or unguarded against circumstance always warning him

of our neighbourhood too soon; besides which he had a troublesome habit of suddenly rising in the most unaccountable manner from some unexpected corner or hollow. We might examine long and carefully the whole face of a hill, and having made ourselves perfectly sure that nothing larger than a mountain hare could be concealed on its surface, up would rise the red stag from some trifling hollow, or from behind some small hillock, and, without looking to the right or left, off he would go at his usual trot, till we lost him in the distance.

At another time, after we had beat, as we imagined, a whole wood, so that we were convinced that neither deer nor roe could have been passed over, up would get the stag out of some clump of larch or birch, apparently scarcely big enough to hold a hare. Or else he would rise at the very feet of one of the beaters, and though not above a hundred yards from the corner where I was posted he always managed to turn back, perhaps almost running over some man who had no gun: but he invariably escaped being shot at, excepting on one occasion, when I placed a friend who was with me near a pass by which the stag sometimes left a favourite wood. I had stationed the shooter at the distance of half a mile from the wood, as the deer was always most careful of himself, and most suspicious of

danger, when he first left the cover. On this occasion, according to my friend's account, the great beast had trotted quickly and suddenly past him at eighty yards' distance, and took no notice of the barrels discharged at his broadside, though fired by a very good shot, and out of a first-rate Manton gun that carried ball like a rifle. My friend could not account for missing him; but missed he evidently was.

I determined one day to start off alone in pursuit of this stag, and to pay no attention to any other deer I might see during my excursion. Donald's orders were to meet me at a particular rock, about eight miles from home, the next day at two o'clock; my intention being, in the event of my not returning the same night, to work my way to a distant shepherd's house, and there to sleep. Donald had directions as to the line by which he was to come, that he might not disturb one or two favourite corries; and he was also to bring a setter and my shooting apparatus, as I took with me only a single-barrel rifle and a few bullets. I did not take Bran, as, being alone, I could not be quite sure that he would not be in my way when getting up to the deer, in case I found him; but I took a dog of a very different kind—a powerful bulldog, who was well accustomed to

deer-stalking, and who would lie down for an hour together if desired to do so, without moving an inch.

On leaving the house at daybreak, or at least before the sun was risen, I struck off in a straight line through the woods, till, having got through the whole cover, I sat myself down on the top of what was called the Eagle's Craig, and turned, for the first time that morning, to the east to look at the sun, which was now rising in its utmost glory and brightness,—a glorious sight, and one that loses not its interest though seen each returning day, particularly when viewed from the lonely places either of land or sea: below me lay a great extent of pine-wood, concealing the house and the cultivated land around it, with the exception of a glimpse caught here and there of the bright green meadow which formed the banks of the river. The river itself was visible through many openings, and where the outline of the trees was lower than in other places: beyond the river rose a black-looking moorland, which, growing gradually higher and higher, terminated in mountains with a most varied and fantastic outline of peaks and precipices, the stony sides of which were lighted up by the rising sun, and exhibited a strong contrast to the deep colour of the hills

below them, covered with dark heather, and not yet reached by the sun's rays.

On the other side the ground was of quite a different character: immediately on leaving the wood, the country for some distance had a dreary cold look, being covered not with heather, but with a kind of gray grass, called there deer's grass, which grows only in cold swampy ground. Here and there this was varied by ranges of greystone and rock, and dotted with numerous lochs. In the distance to the west I could see the upper part of a favourite rocky corrie, the sun shining brightly on its gray rocks: a little to my right the fir-woods terminated, but on that side, between me and the river, of which every bend and reach was there in full view, were numerous little hillocks with birch-trees, old and rugged, growing on them: here and there, too, amongst these hillocks, was a great round gray rock, and the whole of this rough ground was intersected with bright green glades. Some three miles up the river a blue line of smoke ascended perpendicularly in the still morning, the chimney it came from being concealed by a group of birch-trees.

I looked carefully with my glass at all the nooks and grassy places to see if any deer were feeding about them, but could see nothing but two or three

old roe. A moment after a pair of young roe walked quietly out of some concealed hollow, and after gazing about a short time and having a game of romps on the top of a hillock, were joined by their mother, and then all three came into the woods at the foot of the craig where I was sitting. The grouse were calling to each other in all directions, and every now and then an old cock-bird would take a short fly, crowing, to some stone or hillock, where he stood and sunned himself. I was struck just then by the curious proceedings of a mountain-hare, who had been feeding about two hundred yards from me; she suddenly began to show symptoms of uneasiness and fear, taking short runs and then stopping, and turning her ears towards the hillside behind her. I soon saw the cause of her alarm in a beautiful marten cat: the latter, however, having probably already made her morning meal, took little notice of the hare, but came with quiet leaps straight towards me. As I was well concealed amongst the gray fragments of rock which covered the top of the craig, and which were exactly the same colour as the clothes I was dressed in, the little animal did not see me. When about thirty yards off she suddenly stopped and looked in my direction, having evidently become aware, through some

of her fine senses, of the vicinity of an enemy. She offered me a fair shot, and, well aware of the quantity of game killed by these animals, I sent a rifle-ball right into her yellow chest as she sat upright with her head turned towards me.

But time advanced, so I delayed no longer, and started off in a westerly direction. Many a weary mile did I tramp that day without seeing anything but grouse, and an occasional hare. Nevertheless I saw many fresh tracks of red-deer: particularly crossing one mossy piece of ground, where there appeared to have been at least twenty or thirty deer, and amongst them one or two large fine stags. In one place I saw a solitary track of a noble stag, but it was two or three days old. I judged that the herd whose tracks I saw had a good chance of being in or about a corrie, a good view of which I should get from the next height; but after a long and tiresome survey of the ground I could see no living creature, excepting a heron, who was standing in his usual disconsolate attitude on a stone in the burn that ran out of the corrie, adding by his very presence to the solitude of the scene. "I don't understand where these deer can be," was my internal ejaculation, "but here they are not; so come on, good dog." Another and another height did I pass over, and many a glen did I scan inch by inch till my eyes

ached with straining through the glass: nothing could I see, and I began to think to myself that as it was past two and the shepherd's house was some three hours' walk, I had better turn off in that direction; so slanting my course a little to the north, I pulled my plaid tight round me and walked on. In deer-stalking, as much as in the every-day pursuits of life, the old adage holds good—

Credula vitam
Spes fovet.

And this said hope carries the weary stalker over many a long mile. I came in half an hour to a large extent of heather-covered ground, interspersed with a great number of tumulus-shaped hillocks. I looked carelessly over these, when my eye was suddenly attracted by a red-coloured spot on one of the mounds. I turned the glass in that direction, and at once saw that it was a large bright-coloured stag with fine antlers, and altogether an animal worth some trouble. He was in a very difficult situation to approach. He commanded a complete view of the face of the hill opposite to him, and over the summit of which I was looking, and I was astonished he had not observed me, notwithstanding all my care. As the wind blew, I could not approach him from the opposite direction, even if I

had time to get round there before he rose; and I knew that once on foot to feed, his direction would be so uncertain amongst the mounds where he was, that my chance would be small.

After a short survey I started off at my best pace to the right, thinking that from the nature of the ground I might succeed in getting into the valley unobserved; and once there, by taking advantage of some hillock, I should have a tolerable chance of approaching him. After what appeared to me a long tramp I came to a slight rise of the shoulder of the hill: beyond this was a hollow, by keeping in which I hoped to get down unobserved. It was already past three, but the stag had not yet moved; so, keeping the tops of his horns in view, I began to crawl over the intervening height. At two or three places which I tried I saw that I could not succeed. At last I came to a more favourable spot; but I saw that it still would not do, however well the dog behaved, and a capital stalker he was, imitating and following every movement of mine, crouching when I crouched, and crawling when I crawled. I did not wish to leave him quite so far from the deer, so I made another cast, and this time found a place over which we both wriggled ourselves quite unseen. Thank God! was my exclamation,

as I found myself in a situation again where I could stand upright. Few people excepting deer-stalkers know the luxury of occasionally standing upright, after having wormed oneself horizonally along the ground for some time. There were the horns with their white tips still motionless, excepting when he turned back his head to scratch his hide or knock off a fly. I now walked easily without stooping till I was within three or four hundred yards of him, when I was suddenly pulled up by finding that there was no visible manner of approaching a yard nearer. The last sheltering mound was come to; and although these mounds from a distance looked scattered closely, when I got amongst them I found they were two or three rifle-shots apart at the nearest. There was one chance that occurred to me: a rock or rather stone lay about eighty yards from the stag, and it seemed that I might make use of this as a screen, so as, if my luck was great, to get at the animal. I took off my plaid, laid it on the ground, and ordered the dog to lie still on it; then buttoning my jacket tightly, and putting a piece of cork, which I carried for the purpose, into the muzzle of my rifle to prevent the dirt getting into it, I started in the most snakelike attitude that the human frame would admit of. I found that by keeping perfectly flat,

and not even looking up once, I could still get on unobserved. Inch by inch I crawled: as I neared the stone my task was easier, as the ground sank a little and the heather was longer. At last I reached the place, and saw the tips of his horns not above eighty yards from me. I had no fear of losing him now; so, taking out the cork from my rifle, I stretched my limbs one by one, and prepared to rise to an attitude in which I could shoot; then, pushing my rifle slowly forward, I got the barrel over the stone unperceived, and rose very gradually on one knee. The stag seemed to be intent in watching the face of the opposite hill, and, though I was partially exposed, did not see me: his attitude was very favourable, which is seldom the case when a stag is lying down; so, taking a deliberate aim at his shoulder, I was on the point of firing, when he suddenly saw me, and, jumping up, made off as hard as he could. He went in a slanting direction, and before he had gone twenty yards I fired. I was sure that I was steady on him, but the shot only seemed to hurry his pace; on he went like an arrow out of a bow, having showed no symptom of being hurt beyond dropping his head for a single moment.

I remained motionless in despair: a more mag-

nificent stag I had never seen, and his bright red colour and white-tipped horns showed me that he was the very animal I had so often seen and wished to get. He ran on without slackening his pace for at least a hundred yards, then suddenly fell with a crash to the ground, his horns rattling against the stones. I knew he was perfectly dead, so, calling the dog, ran up to him. The stag was quite motionless, and lay stretched out where he fell, without a single struggle. I found on opening him that the ball had passed through the lower part of his heart—a wound I should have imagined sufficient to have deprived any animal of life and motion instantaneously. But I have shot several deer through the heart, and have observed that when hit low they frequently ran from twenty to eighty yards. If, however, the ball has passed through the upper part of the heart, or has cut the large blood-vessels immediately above it, death has been instantaneous, the animal dropping without a struggle.

Having duly admired and examined the poor stag, not, I must own, without feeling compunction at having put an end to his life, I set to work bleeding and otherwise preparing him for being left on the hill till the next day, secure from attacks of ravens and eagles; then, having taken my land-

marks so as to be sure of finding him again, I started on my march to the shepherd's house, looking rather anxiously round at the increasing length of my shadow and the diminished height of the sun; the more so as I had to pass some very boggy ground with which I was not very well acquainted. I had not gone a quarter of a mile, however, when I saw the shepherd himself making his way homewards. I gave a loud whistle to catch his attention, and, having joined him, I took him back to show the exact place where the stag was lying, in order to save myself the trouble of returning the next day. Malcolm was rather an ally of mine, and his delight was great at seeing the stag.

"'Deed, ay, sir; it's just the muckle red stag himsel'; mony a time I've seen the bonny beast. Save us! how red his pile is!"

"Yes, he is a fine beast, Malcolm; and you must bring your gray pony for him to-morrow. I must have the head and one haunch down to the house; take the rest to your mother; I dare say she can salt it."

I knew pretty well that this good lady must have had some experience in making red-deer hams, unless Malcolm was very much slandered by his neighbours; nevertheless he had promised me not to poach on my ground, and knowing that I trusted

quite to his honour, I believe that he neither did so himself nor allowed any one else to do so.

"You are ower good, your Honour; and the mither will be glad of a bit venison; it's a long time now since I killed a deer."

"When was the last, Malcolm?" I asked.

"Why, mony a day, sir; but, to tell the truth, it is only yesterday since I shot at one."

"And where was that, Malcolm?"

"Why, if your Honour wishes to know, and I am sure you will do no ill turn to a lad for taking a shoot, I'll just tell you."

I could not help smiling at Malcolm's describing himself as a lad. He was six feet three inches without his shoes, and a perfect giant in every proportion, but strong and active withal, and a capital stalker, being able to wind his great body about through moss and heather in a manner that was quite marvellous. Malcolm's account, then, was, that a shepherd on an adjoining property, or rather on one divided from where we were by a long lake, had asked him to come up some evening with his gun to "fleg" some deer that had been destroying his little crop of oats. Well, Malcolm had gone; and the evening before I met him he had fired in the dusk at a stag with a handful of large slugs; the deer was hit and crippled, but had thrown

out the colley dogs, which had pursued him, by taking to the water and apparently swimming the loch. If he had managed to cross he would be on my side of it, and I might by chance fall in with him on my return home the next day in some of the burns and glens through which I should have to walk. I did not blame Malcolm much, knowing the mischief done by deer to the shepherds' little crops; besides which the ground where he had shot this stag was not preserved or used as a forest by the owner.

We had a weary walk, though enlivened by Malcolm's quaint remarks. Without his company and guidance I saw plainly that I should have had some difficulty in finding my way through the rough ground over which we had to pass. The night, too, had come on quite dark before we reached the shealing.

On entering I was much struck by the group which we saw by the light of several splinters of bog-fir laid on a stone. Malcolm's old father, a man whose years numbered at least fourscore, was reading a chapter of the Bible in Gaelic to the rest of his family, which consisted of his wife, a woman of nearly equal age to himself, but hale, neat, and vigorous, and of a sister and brother of Malcolm's: the former a peculiarly pretty, though somewhat

extensive damsel; and the latter a giant like Malcolm himself, equally good-looking, and equally respected in his own rank of life. The old man having looked off his book for a moment, without pausing in his reading, continued his chapter. Following Malcolm's example, I took off my cap, and sat down on a chest in the room, and though of course not understanding a word of what was read, instead of being inclined to smile at the peculiar twang and bagpipe-like drawl with which the old man read, I was struck by the appearance of real devotion and reverence of the whole group, and looked on with feelings of interest and respect till he came to the end of a somewhat lengthy chapter. This finished, the old man, resting his head on his hands, which his long gray hair entirely covered, uttered a short prayer in the same language. The moment this was done he handed the Bible to his daughter, who, wiping it with her apron, deposited it in a chest. I was then received with great kindness, and preparations were made for Malcolm's and my supper, which consisted of tea, oatcake, eggs, and some kippered trout, caught in a stream running out of the large loch, and which when alive must have weighed at least twelve pounds: such cream and milk, too, as is met with, or at any rate enjoyed, only in the Highlands.

With great discretion the old people talked to me but little during the meal, seeing that I was tired and hungry; but over the glass of capital toddy which succeeded the tea I had many a question to answer respecting the killing of the stag, etc. The old lady spoke very little English, but understood it well enough. The old shepherd listened with great interest, the more so from having been a somewhat famous stalker in his own time, and now a great lamenter of the good old time when deer and black cattle were more plentiful, and sheep comparatively few to what they are in the present day.

CHAPTER XXVI.

Sleeping in Shepherd's House—Start in the Morning—Eagle—Wild-geese—Find Deer; unsuccessful shot—Rocky Ground—Wounded Stag—Keeper and Dog—Walk Home.

BEFORE the earliest grouse-cock had shaken his plumage, and called his mate from her heather couch, I had left my sleeping-place in the building that did duty for a barn, where deep in the straw and wrapped in my plaid I had slept sound as a deer-stalker, and I fancy no person sleeps more soundly. I had preferred going to roost in the clean straw to passing the night within the house, knowing by former experience that Malcolm's shealing was tenanted by myriads of nocturnal insects which, like the ancient Britons, "feri hospitibus," would have left me but little quiet during the night. The last time I had slept there, all the fleas in the shealing, "novitatis avidi," had issued out, and falling on the body of the unlucky stranger, had attacked me in such numbers, that unanimity only was wanting in their proceedings to have enabled them to carry me off bodily. Tempted by the clean

and fresh appearance of the good lady's sheets, I had trusted my tired limbs to their snowy whiteness, when, sallying forth from every crevice and every corner, thousands of these obnoxious insects had hopped on to me, to enjoy the treat of a supper of English blood. The natives of these places seem quite callous to everything of the kind.

To continue, however. After making good use of the burn that rippled along within fifty yards of the house, and having eaten a most alarming quantity of the composition called porridge, I sallied forth alone. Malcolm and his brother would fain have accompanied me, but the latter had to attend some gathering of sheep in a different direction, and Malcolm was obliged to go for the stag killed yesterday. He therefore only walked a few hundred yards up the first hill with me, in order to impress well on my recollection the different glens and burns he wished me to look at on my way to the place of rendezvous with old Donald. The sun was but a little distance above the horizon when I gained the summit of a tolerably long and steep ascent immediately behind Malcolm's house. A blackcock or two rose wild from some cairn of stones or hillock, where they had been enjoying the earliest rays of the sun, and flew back over my head to take shelter in the

scattered birch thickets near the shealing; and here and there a pack of grouse rose, alighting again before they had flown a hundred yards, as if fully understanding that grouse-shooting was not the order of the day, and, strutting along with their necks stretched up, seemed to care little for my presence. The ring-ousel flitted from rock to rock, uttering its wild and sweet note. Truly there is great enjoyment gained by the early riser; everything in nature has a pleasant aspect, and seems happy and thankful to see the light of another sun.

The great mountain to the west looked magnificent as its gray corries and cliffs were lighted up by the morning rays. A noble pile of rock and heather is that mountain, and well named Ben Mhor, or the Big Mountain—not a triton amongst minnows, but a triton amongst tritons. The golden eagle, to add grandeur to the scene, was sweeping through the sky high above me, and apparently eyeing my canine companion with mingled curiosity and appetite. Once or twice in his circles he came so near that I was half inclined to send a rifle-ball at him, but as often as I stopped my walk with this intention, the noble bird wheeled off again, and at last, remembering his breakfast hour was past, flew off in a straight line at a great height towards the loch to the north of us, where he probably

recollected having seen some dead or sickly sheep during his flight homewards the evening before.

I had several hours to spare before the time of meeting Donald, so I diverged here and there, wherever I thought it likely I should find deer, and then kept a northerly course in order to look at some burns and grassy ground near the loch, according to Malcolm's advice. The loch itself was bright and beautiful, and the small islands on it looked like emeralds set in silver. With my glass I could distinguish eight or nine wild-geese, as they ruffled the water in their morning gambols, having probably just returned from grazing on the short green grass that grew on different spots near the water's edge. These grassy places were the sites of former habitations, and were still marked by the line of crumbled walls, now the constant resort of the few wild-geese that breed every year on the lonely and unvisited islands of the loch.

Below me there was a capital flat for deer, a long sloping valley with a winding burn flowing through the middle, along the banks of which were grassy spots where they constantly fed. I searched this long and carefully with my glass, but saw nothing excepting a few small companies of sheep which were feeding in different flocks about the valley. So famous, however, was this place as the resort of

deer, that I took good care not to show myself, and crawled carefully into a hollow way, which, leading to the edge of the burn, would enable me to walk almost unseen for a long distance, and I thought that there might still be deer feeding in some bend of the watercourse, where they had escaped my search. Before I had walked many hundred yards down the course of the burn I saw such traces as convinced me they had been feeding there within a few hours; so arranging my plaid and rifle I walked stealthily and slowly onwards, expecting to see them every moment. The nature of the ground was such that I might come on them quite unperceived; the dog too showed symptoms of scenting something, putting his nose to the tracks and then looking wistfully in my face, watching every movement of my rifle. The inquiring expression of his face was perfect: whenever I stopped to look over or around some projecting angle of rock he kept his eyes fixed on my face, as if to read in it whether my search was successful or not. A deer-stalker in the situation I was in would make a good subject for a painter. I wound my way silently and slowly through the broken rock and stone which formed the bed of the burn, showing in their piled up confusion that the water must at some times rage and rush with the fury and power

of an Alpine torrent, though now it danced merrily along, rippling through the stones, and forming tiny pools here and there, where it had not strength enough to break through the accumulated sand and gravel which dammed up its feeble stream. Dressed in gray, and surrounded with gray stone on every side, I was as little conspicuous as it was possible to be, and there was just enough ripple in the stream and its thousand miniature cascades to drown the sound of my footsteps, whenever I inadvertently put my foot on any stone that grated or slipped below me. The only thing that annoyed me was an occasional sheep that would see me from the bank above, and by running off in a startled manner was likely to warn the deer, if there were any ahead of me, of the vicinity of an enemy. I had continued this course for some distance, when just as I began to propose to myself turning off in order to cross the valley to look over the next height, and had made up my mind that the deer whose recent traces I had seen must have slipped away unobserved,—just then, on turning a corner, I caught a momentary glimpse of the hind-quarters of one of the wished-for animals walking slowly round a turn in the burn. I stopped, fearing they had seen or heard me, and I expected to see them leap out of the hollow

and make away across the valley; but not seeing this happen, I walked carefully on, and came in view of nine deer, hinds and calves, who were feeding quietly on a little piece of table-land close to the burn. I also saw the long ears of another appearing beyond and above the rest, evidently being on the look-out. They seemed to have no suspicion of an enemy, and when they stopped to gaze about them their heads were turned more towards the plain around than to the course of the burn. The sentry too was seemingly occupied with looking out in every direction excepting where I was. They were not more than two hundred yards off, and I judged that by advancing quickly the moment that they turned the next corner, I should be able to get unperceived within forty or fifty yards. The single hind had disappeared too, having gone over a small rise. I put on a new copper cap, and felt sure of an easy shot: the dog, though he did not see the deer, perfectly understood what was going on, and seemed afraid to breathe lest he should be heard. Amongst the herd were two fine barren hinds, both in capital condition. I did not care which of the two I might kill, but determined to have one, and was already beginning to reckon on Donald's delight at my luck in getting a fine hind as well as the

stag I had killed yesterday. All the hinds had now gone out of sight, and I moved on. At that very moment the sentry hind, a long-legged, ragged, donkey-like beast, came back to the mound where she had been before, and her sharp eyes instantly detected me. Never did unlucky wight, caught in the very act of doing what he least wished should be known, feel, or I dare say look, so taken aback as I was. I stood motionless for a moment, hoping that even HER eyesight might be deceived by my gray dress, but it was too late: giving a snort of alarm, she was instantly out of sight. I ran forwards, trusting to be in time for a running shot at some straggler, and came in view of the whole troop galloping away, a tolerably long shot off, but still within range, and affording a fair broadside mark as they went along in single file to gain the more level ground. I of course pulled up, and took a deliberate aim at one of the fat hinds. She afforded me a fair enough chance, but I saw, the moment I pulled the trigger, that I had missed her. The ball struck and splintered a rock, and must have passed within a very few inches of the top of her shoulder. I saw my error, which was that, miscalculating the distance, I had fired a little too high. However, it was too late to remedy it; so I stood quietly watching with

a kind of vague hope that my ball might have passed through her shoulder, though in reality I was sure this was not the case. They never stopped till they reached the very summit of one of the heights that inclosed the valley, and then they all halted in a group for two or three minutes, standing in clear and strong relief between me and the sky. After looking back for a short time towards the point of alarm, they disappeared over the top of the hill, and I reloaded my rifle, and then went to examine the exact spot where my ball had struck. Judging from the height it was from the ground, I saw the hind had had a very narrow escape, and muttered to myself "Not a bad shot after all, though unlucky; well, I'm glad it was not a fine stag—never mind the hinds." It's pleasant to find consolation—"rebus in adversis;" my dog in the meantime scented about a good deal, and seemed to wonder that I had missed.

I now turned off out of my stony path, and walked across a long tract of easy ground. There were several likely spots in my way, but no deer were to be found; and an hour before my time I arrived at the trysting-place, which was a peculiarly shaped large rock, standing in the midst of a great extent of ground covered with gray stones and rocks of a similar description, but all much

smaller. The rock itself rejoiced in a Gaelic name, signifying the "Devil's Stone." It was a curious spot,—a wide and gentle slope of a hill perfectly covered with these gray stones, looking as if they had dropped in a shower from the clouds. They ended abruptly near the foot of the hill, and formed almost a straight line, as if some giant workman had done his best to clear the remainder of the slope, and had picked all the stones off that part, as children do off a grass-field. Upwards, towards the top of the hill, they increased, if possible, in number, and the summit appeared like one mass of rock. Through all this desolation of stone there were several strips of heather, or withered-looking grass, not much wider, however, than footpaths. They served as passes for any sheep and deer which might fancy journeying through them.

I reached my point of rendezvous, and sat down to wait patiently for Donald, with my face turned in the direction whence he was to arrive. I knew that, unless detained by any quite unforeseen accident, he would arrive rather before than after his time, as he was to bring me something in the shape of luncheon, the liquid part of which I was confident he would not forget.

I waited some time in this solitude, without hearing or seeing any living creature to enliven the

dreary landscape before me, with the exception of a pair of ravens who passed at no great height above me, uttering their harsh croaks of ill omen as they winged their way in a direct course, to feast probably on the remains of some dead sheep or deer.

My attention was suddenly roused, however, by hearing a couple of shots in quick succession, the sound coming from the direction in which I expected Donald. As the reports did not appear to be at any great distance, I rose with the intention of going to meet him; though I could not understand what he was shooting at, it being quite against both his and my ideas of propriety that he should hunt the very ground over which I intended to beat homewards. On second thoughts, I fancied that he had fired off his gun to warn me of his approach; but, just as I was passing these things over in my head, I saw a stag of good size come in view from the direction in which I had heard the shots. Down I dropped instantly behind a rock, as the deer was coming straight towards me. As he approached, I saw that the poor beast was hard hit. One of his forelegs was broken, and swinging about in a miserable manner, and he had also one of his horns broken off a few inches above his head; altogether he seemed in a most pitiable state.

Before he came within two hundred yards of me he turned off, and I watched him as he scrambled along on three legs painfully and slowly, stopping frequently to look back, or to smell at the blood that was trickling down his sides. I could plainly see that he was also struck somewhere about the middle of his body, as well as on the horn and leg, and was now bleeding fast. It then occurred to me that Donald had fallen in with a lame stag, and had thought it best to do what he could towards killing him with my gun. Bullets he always took with him by my orders. The stag continued his painful march, and I would have given much to have been within reach to put an end to the poor brute's misery. He twice lay down on a grassy spot amongst the rocks, having first looked anxiously and fearfully round him; but seemingly the attitude of lying was more painful to him than moving slowly on. I remembered then a theory of Donald's, that a deer never lies down when shot through the liver, but continues moving, or at any rate standing, till he dies. How far this opinion was correct I never had a good opportunity of proving. The deer before me, having found that lying down gave him no relief, continued moving, but still slowly and with evident difficulty. Once he stopped and stood in a pitiful attitude, trembling

all over, and moving his head up and down as if oppressed with deadly sickness. After this he seemed to recover slightly, and, standing erect, gazed with care and anxiety in every direction; then, as if determined to make one more effort for his life, set off in a broken trot. He had been winding about amongst the rocks all the time I had been watching him, seldom more than two hundred yards from me, and sometimes so near that I was half tempted to try a shot at him; but I was always in hopes of getting within surer range, and did not fire. He now trotted off about three hundred yards, where there was a small black pool of water. Into this he went; it did not at first reach higher than his knees. Just then Donald appeared in view, coming slowly and cautiously over the hill, and leading a pointer in a string. I saw that the dog was tracking the deer. It was a large powerful dog, of great size and strength—one of the finest, if not quite the finest built dog of the kind that I had ever possessed or seen. Having been at the death of one or two deer, he had taken a mighty fancy to the scent of a bleeding stag, and tracked true and keenly. I sat quiet to watch him and the old Highlander, as they came slowly but surely on the track, with both their noses to the ground; Donald hunting low, in order to be sure that the dog was still right,

which he could tell pretty well by the occasional spots of blood on the gray stones, though the ground was too hard most of the way to show the mark of the foot. Now and then they seemed quite thrown out for a minute or so; this I saw was generally occasioned by Donald's want of judgment: the dog, though he strained on the string, kept the track wonderfully well in every turn. The poor object of their chase, when he first saw his enemies appear, gave a sudden start, and seemed inclined to make off; but on second thoughts he stopped short again, and, lowering his head and neck, crouched in the water, as if trusting to the surrounding rocks for concealment; and there the poor animal remained, with stooping horns, perfectly motionless, but evidently with every nerve and sense on the alert, listening for the nearer approach of his enemies. For my own part, I became quite interested in watching Donald and the dog; I knew that the stag was safely ours, as he could not leave the pool without coming into full view, and having to depend on his speed for safety, which in his enfeebled state was the last thing he would like to do. Donald looked anxiously round him sometimes, as if he hoped to see me, and as if he expected to hear my rifle every moment, since he was well aware that our time of meeting was past, and that I was pretty

sure not to be far off. When he came near the "Devil's Stone" he checked the dog, and came to a determined halt, hesitating whether to continue tracking the stag, or to wait for my appearance and assistance; he took a long look too at the country far beyond where the animal really was. It was amusing to see the old fellow, as he sat within eighty yards of me, perfectly unconscious that the stag was so near him, and that I was still nearer. The whole thing, too, showed the great necessity of always having a good tracking dog out when deer-stalking; for here was a mortally-struck stag lying concealed, where a dozen men might have passed within a few yards without seeing him. I thought it time to finish the business, and gave a low whistle to warn Donald of my neighbourhood before I stirred, as I thought it not at all unlikely that he would fire blindly at the first moving thing he saw amongst the rocks in his present excited state. He started and stared round him. I saw that the deer only crouched the lower, and would not move; so, whistling again, I stood up. "The Lord keep us, sir, but you flegged me just awful!" said Donald. "But did your Honour see a stag come this way?" I told him that I had, and that he had passed on; but I did not say how far he had gone. The old man was annoyed in no slight degree at the information; and

on my questioning him how he had got at the deer, etc., he told me that, as he came to meet me, he had seen a crippled stag coming slowly over the ground exactly towards him; and that having stooped down and loaded the gun he carried as quickly as he could, he had waited till the stag passed within twenty yards of him; that he then fired both barrels, one at his head and neck; that one ball had broken off a portion of the animal's horn, while the other had passed through his body, tumbling him over for a moment; but that he had quickly recovered and made off in my direction, and was probably now in the burn over the next hill. "But you are aye smiling, sir; and I ken weel that you've seen more of the brute than you tell me." I told the old man exactly where he was; and having made him quite understand the very rock he was behind, I gave him the rifle to finish the work he had commenced, while I sat down with the two dogs in full view of the pool, in order to keep the attention of the stag occupied.

"Now then, Donald, take care; don't be in a hurry, and hit him in the heart or the head."

"No fear, no fear; if I put out," said Donald, "ye needna mind, the beast is as gude as killed already."

Then taking a prodigious spoonful of snuff to

clear his brain, and divesting himself of his game-bag and other encumbrances, he set off. He reached a mound within thirty yards of the stag, and lying flat on his stomach, with his rifle resting on the bank, he aimed long and steadily; then, with sundry kicks and contortions, screwing himself into an attitude that pleased him more, he took another aim, and then a good strong pull at the trigger—but in vain, as he had not cocked the rifle. Without taking it off the rest over the bank, he pulled back the hammer and fired instantly, missing the stag entirely. Donald was too astonished to move; but not so the stag, who jumped up and made off—going, however, so stiffly and lamely, that I saw the dogs must bring him to immediately. So I let them go, and in a very short time they had the poor beast on the ground, and were both fixed on him like leeches, the bull-dog on his throat, and the pointer worrying at his shoulder.

"Bravo, Donald!—well missed!" I could not help calling out as I passed him, running as hard as I could to help the dogs. The old man was not long in joining me; and the dogs were soon got off. The stag was bled, and then examined all over to see where he had been struck.

"'Deed, sir," said Donald, pointing to the rifle, "she is as gleg and kittle to handle as"——

Here he paused as if at a dead loss for a simile; which I was obliged to help him to at last by suggesting, "As your own wife, Donald." At which he indulged in a low inward chuckle and a pinch of snuff, without, however, denying the "soft impeachment."

On looking at the stag, we found that he had evidently been very lately shot at, and that one of his forelegs was broken above the knee—the bone smashed entirely, and the leg hanging on by the skin, which would have soon worn through; the animal, having lost the incumbrance of the broken limb, would soon, if left in quiet, have entirely recovered. We prepared our game for being "left till called for," and sat down to our luncheon. My account to Donald of the death of my other stag was interrupted by a most desperate battle between the dogs, who had fallen out over the dead body; and being pretty well matched in size and courage, we had great difficulty in reducing them to order, and compelling them to keep the peace.

I had a pleasant though not very bloody afternoon's shooting going home, killing seven brace of wild-flying grouse, a mallard, and two blackcocks. The night had set in before we were half way through the woods in which the last two or three miles of our road lay; we could hear numberless

owls hooting and calling on the tops of old larch-trees. Everything else was as still as death.

"'Deed, sir, that's no canny!" exclaimed my companion, as an owl with peculiar vigour of lungs uttered his wild cry close to us, and then flitting past our faces, alighted on the opposite side of the avenue we were walking along, and recommenced his song of bad omen. "If it wasn't so dark, I'd empty the gun into his ugly craig." However, as it *was* so dark, the owl escaped being sacrificed to Donald's dislike this time; and we soon reached the house, where the comforts of my own dressing-room were by no means unacceptable after so long an absence from razor, brushes, etc.

EXTRACTS FROM NOTE-BOOKS.

Roebuck.

Vol. ii. p. 117.

NOTES ON NATURAL HISTORY AND ON SHOOTING.

CHAPTER XXVII.

Length of Life of Birds—The Eagle—Swan—Geese—Falcons—Fowls—Pigeons—Small Birds—Great age of Eagles and Foxes—Red-deer—Destruction of Old Stags—Roe—Sheep—Rifles; size of their bore—Double-barrelled Rifles—Size of Small Shot—Cartridges—Impossibility of laying down general rules—Necessity of discretion in all writers on Natural History.

It is not easy to determine the length of years bestowed on any of the wild animals. There are no specific and well-ascertained data on which to form a valid opinion. On all such subjects the most positive *assertions* are often so ill supported by *facts*, that the naturalist should be most careful and guarded as to the evidence on which he founds his opinion. It seems, however, reasonable to suppose that the age attained by all animals bears a certain proportion to the time which they take in coming to their maturity in size and strength.

Judging by this criterion, the eagle may be set down as one of the longest-lived of our British birds; as he certainly does not arrive at the full maturity of his plumage for some years. On the other hand, the swan puts on her white feathers at her first moulting, yet is said to live to a very great age; and there are well-authenticated instances that this is the fact. Geese, too, live to a most patriarchal age. The period of life of tame falcons does not exceed eight to ten years—at least so I am assured by some of my acquaintances who have kept these birds. A wild hawk, barring accidents from shot or trap, has, probably, a better chance of longevity than a domesticated bird, however carefully the latter may be tended, as it is almost impossible to hit upon the exact quantity, quality, and variety of food which best conduces to their health, or to give tame birds as large a share of exercise and bodily exertion as in their wild state they would be constrained to take in pursuit of their daily prey. Common fowls live to the age of ten or twelve years, but become useless and rheumatic after six or eight. Such, also, is the case with pigeons. I knew of a pair who lived for fifteen years, but they were barren for some years before their death.

The length of life of small birds is probably less;

but it is difficult to form an accurate opinion on this point, inasmuch as any deductions founded on canaries or goldfinches in a state of confinement must be fallacious, as all caged birds are subject to numerous diseases, from over-eating, from improper and too little varied food, and a thousand other causes, which do not affect those who live in a state of natural and healthful liberty.

It is a curious fact that one scarcely ever finds the dead body of a wild bird or animal whose death appears to have been caused by old age or any other natural cause. Nor can this result from the fact of their being consumed immediately by animals of prey, as we constantly meet with the bodies of birds who have been killed by wounds from shot, etc. Either (as donkeys and postboys are said to do) the wild animals on the approach of death creep into hidden corners of the earth, or nearly all of them, before they reach extreme old age, are cut off by their common enemy, mankind, or serve as food to birds and beasts of prey.

I have, however, killed both eagles and foxes who bore unmistakable marks of extreme old age; the plumage of the former being light coloured, thin, and worn; so worn, indeed, as to lead one to suppose that the bird could not have moulted for several seasons; and the faces of the latter being

gray and their jaws nearly toothless: yet they were still in good, and even fat condition. In animals, age and cunning supply the place of strength and activity; so that the eagle and fox are still able to live well, even when they have arrived at the most advanced age assigned to them.

Very old deer become light-coloured and grayish, especially about the head and neck, and have a bleached and worn-looking appearance over their whole body. Their horns, also, lose much of their rich appearance both as to colour and size, becoming not only smaller but also decreasing in the number of their points. The Highlanders assign a great age to the red-deer; indeed they seem to suppose that it has no limit, save a rifle ball; and they tell wonderful stories of famous stags, who have been seen and known for a long series of years in certain districts. Though these accounts are doubtless much exaggerated, it is tolerably certain that their life extends to from twenty to thirty years. I do not imagine that in these days stags have much chance of reaching that term. At the age of seven or eight years, the animal having arrived at full perfection as to size and beauty of antler, they are marked down for destruction by the numerous sportsmen who wage war against them in every part of the north of the island. Their

numbers in certain preserved districts have, no doubt, increased to a great extent; but very few of the fine, rugged, and far-stretching antlers, which adorn the halls of many of the old houses in the Highlands, are now to be met with on living deer. Where not brought down by the licensed sportsman, a fine-headed stag has now so high a premium offered on his life in the price given for horns, that he is sure to fall by the gun of some poacher or shepherd. I have known as large a sum as five guineas given for a stag's head: and when this is the case, nothing else can be expected but that every stag whose horns are peculiarly fine, will be killed. I have occasionally shot roebucks, and still oftener does, showing by their size, colour, length of hoofs, etc., that they had reached a tolerable old age: but, like all persecuted animals, the chance of their attaining their full extent of days is so slight as scarcely to give us the means of ascertaining how long they would live if secure from danger.

Sheep after seven or eight years lose their teeth, more or less, and show symptoms of their best days being past. But these, like all other domesticated animals, do not afford a good criterion to judge by, as they are all under an artificial system as to food and manner of living, which

makes them, like man, subject to many diseases and causes of decay, which would not affect them if they were in a state of nature.

In populous countries such as Britain, it may fairly be supposed that extremely few wild animals or birds reach their full period of life. Although some kinds are carefully preserved here and there, they are only preserved, like sheep or fowls, to be the more conveniently killed when required; and where there is no restriction to shooting and destroying the feræ naturæ of the country, the extensive trade carried on throughout the kingdom in all the shops where guns and powder and shot are sold, proves what numbers must be destroyed. Added to this, guns and rifles are now so well made as to be much more destructive weapons than formerly. No reasonable person would wish to be able to kill a bird at a greater distance than his fowling-piece now enables him to do; and a modern rifle carries correctly quite as far as a man can see clearly enough to aim with nicety at a small object.

In shooting with the rifle at large animals, such as deer, a good-sized ball is, for several reasons, a very great desideratum. In the first place, the larger the ball the greater is its force. A ball of 11 bore smashes through a substance which would stop the ball of a pea-rifle, unless the

latter is aimed at and strikes some vital part. The animal struck carries it away, and either pines wounded for a long time, or dies in some concealed place, where it is lost to the shooter. Also, the wound made by a small ball will frequently close up again immediately, enabling the deer to escape; or the ball, instead of breaking a bone, is stopped by it; and it should be remembered, that when you shoot at an animal, the most merciful way of doing so is with a weapon which *kills* instead of merely *wounding* it. Good single-barrelled rifles can easily be procured; but to get a trustworthy double rifle the sportsman must go to one of the first-rate gunmakers, and pay a first-rate price. By altering the sights of a single-barrelled rifle, any person, knowing the commonest elements of shooting, can make it carry correctly a hundred yards or more; but a double rifle, if the axes of the two barrels are not exactly parallel, can only be adjusted by taking it to pieces again and again, until the barrels shall lie so evenly together, that at a hundred yards the two balls strike within an inch of each other. As it is almost impossible for the most skilful gunsmith to join the two barrels together so correctly *at first* as to attain this result, he has to try them repeatedly, taking his work to pieces again and again, until he is quite satisfied

with his performance. All this must, of course, add to the expense; but it is money well expended if, after all, a double-barrelled rifle does shoot perfectly true. Another important point which should be borne in mind with regard to rifles is, that those of very small bore do not carry so true for long shots as larger ones.

It is difficult to lay down any specific rule as to the most effective size of small shot for shooting game and wild-fowl. Some sportsmen strenuously assert that one particular number is the *only right* kind, or indeed the only kind that ought to be used; others tell you quite a different story. For my own part I consider that for all flying game the shooter should rather be inclined to small sizes than large. No. 7, for instance, kills partridges and even grouse more effectively than a larger size. For wild-duck shooting, too, where you shoot at single birds, No. 5, or even No. 6, appear to me to kill oftener than the larger sizes more generally used. I am, indeed, convinced that small shot works its way better than large through the down and feathers; the latter, notwithstanding its superior force, getting rolled up in the down, while the former cuts through it, and kills the bird. For flocks of ducks larger shot may be used; but even then too large sizes do less execution than smaller

ones. Swans and geese require No. 1 or No. 2, as smaller shot seldom breaks a wing of these birds; but cartridges are the most effective, and then you may use No. 3 at single geese with tolerable certainty. Eley's cartridges, with large shot, such as B.B. or S.S.G., in them, sometimes kill at prodigious distances, but are very apt to "*ball*" completely, and deceive the shooter. Indeed, all the green cartridges have this defect; owing to which the bird is either missed entirely or blown to pieces. Several good shots of my acquaintance can never succeed well with wire-cartridges: they certainly require a different style of shooting from loose shot, as they not only shoot slower, but also are very much inclined to throw the shot low; and in order to use cartridges with success these two facts should be constantly borne in mind.

I find that the "*yellow cartridge*," which is made without any wire, answers extremely well for grouse-shooting, or when common game is wild, as they keep the shot close together, but without balling to any great extent. They are very excellent too for rabbits, who generally require all the shot which the sportsman can give them. Late in the season, hares certainly ought not to be shot at with a size under No. 4: smaller shot will not break their bones sufficiently to stop them at once,

excepting when the animal is crossing you. Different guns, however, carry effectively different sized shot; and therefore the same rules do not apply to all. Some guns also shoot cartridges in a very different manner from others; and I should wish it to be clearly understood that I do not lay down these suggestions as infallible rules, but merely as the results of my own experience, hoping that some of my readers may profit by them. In all matters of this sort I consider that much more information is gained by the reader if an author is content simply to mark down ascertained facts. If too much decision is assumed, and mere hearsay assertions are put down as "*facts*"— if he lays down as general rules what may be applicable only to particular cases—perhaps solely to his own, an author will on this subject, as on most others, do more harm than good. "*Quot homines, tot sententiæ;*" and although half of what I write may probably not meet the ideas of many of my readers, I offer it all, leaving it to every one to extract what is applicable to his own pursuits, and hoping that there may be few who will not find some hint or other, or some chance bit of information which may aid them in their amusements.

Amongst the mass of books written on subjects of natural history, it is curious to see the number-

less errors committed, and the false inferences drawn, by superficial observers, or by persons who set down as facts not merely what they actually see, but what they fancy must, or ought to be; and who describe as ascertained facts things of which they know nothing more than that they seem to be possible, and may be *probable*. This is a system of writing which cannot be sufficiently reprobated as tending to establish most erroneous and mistaken ideas. Every student of nature and of the habits and manners of living creatures, even of those which are apparently the most insignificant and uninteresting, must know that the truest facts concerning them are often much more marvellous than anything he would dare to invent; and that a writer on such subjects, who wishes to embellish his book with startling and surprising anecdotes, will best attain his object by sticking closely to the plain reality.

It is an old and oft-repeated saying, that "Truth is stranger than fiction;" and it is especially so in treating of Nature and her productions, whether we direct our attention to animals of the largest size and highest order of intelligence and instinct, or to the equally astonishing habits and means of living displayed by the smallest insects and reptiles.

CHAPTER XXVIII.

Disease amongst Grouse; difficulty of assigning its cause—Supply of Grouse to Poulterers—Netting game, legal and illegal—Disguised Poachers—Game-Laws—Preserves—Criminality of Poachers—Epidemics amongst Hares, etc.—Black Game—Hybrids—Wood-pigeons—Geese—Sentinels.

It is difficult, I ought perhaps to say impossible, to understand the cause and origin of what the Highland keepers call "the disease" amongst grouse. For the last few years it has in several districts almost swept away these birds; so much so that scarcely a young bird is to be found, and very few old ones. Some persons assign one thing as the cause of this and some another, all plausible, but all on investigation equally unsatisfactory. One keeper will tell you that the heather "is too short;" another, that "it is too long;" one, that the hills have been too wet during the spring; and another, that the weather was too dry: in fact, the most experienced persons are all at fault. For my own part I conceive that it is some epidemic which cuts off the birds indiscriminately in wet and dry, cold and hot weather, without reference to

state of ground or climate. The worst feature of the case is, that as yet nothing approaching to a cure or preventive has been discovered. I should be very much inclined in a diseased district to shoot hard for a season, instead of sparing the survivors; and *then* to give the grouse a year or two of entire rest and immunity from dog and gun. If the hills are let to strangers from a distance during a scarcity of this kind, it is natural to expect that, having no interest in them beyond the season, and paying a considerable rent, they will shoot as many birds as they can, without thinking of the future; and as in general the grounds are each year let to new tenants, the same thing will occur again and again until the birds are nearly extinct.

Luckily, in favourable seasons and on good ground, grouse seem to grow and increase almost like the heather among which they dwell, and the hills soon get stocked again. The number of grouse sent to the markets in London, and in all the large towns in England, from the beginning of August to the end of the season, is perfectly astonishing; and indeed until March any quantity of grouse can be procured from the poulterers and game-dealers. Immense must be the slaughter to afford this supply: the greatest portion are shot; but in some districts considerable numbers are

caught with horse-hair snares set upon the sheaves of corn. Netting does not seem to succeed to any great extent, although it has frequently been tried by poachers. I confess that I do not see why netting game should be considered a more destructive and poaching-like system than shooting it—I mean, of course, if it is carried on legitimately and as an amusement. I admit that the whole covey or pack is caught at once, but that they should all of them have their necks wrung is by no means a necessary *sequitur*. There is, also, a great degree of skill and perfect training required in the "setting dog," which gives much interest to this way of sporting. It should be borne in mind also, that when a covey of partridges is caught they are not injured, and the sportsman can set at liberty all that he does not require; whereas in shooting, very many birds are, of necessity, uselessly wounded and left to perish.

The system of netting partridges at night time, as it is carried on by the poachers in some parts of England, is most destructive; and unless checked is certain to clear the country of all its birds. The only way to prevent this silent and wholesale robbery is to stake and bush the grass-fields. Partridges when undisturbed roost, or rather sleep, regularly in the smoothest grass or barest stubble.

They seem to feel more security with an open expanse around them than in any kind of concealment. The whole covey sits crouched in a space that might almost be covered with a hat, so closely are they huddled together. After having made their evening meal in the stubbles, which they always do, in the autumn and winter, between the hours of three and five, the old birds call their brood and collect them together; they then fly off to some grass-field or other very bare ground, and having run about, apparently in play, for a little while, as soon as the light begins to fail they fly off to some favourite spot in the field, and, huddling up together in a furrow, take up their quarters for the night. Unluckily all this is done with a great deal of noise; the birds constantly calling to and answering each other, and running to and fro with their heads most conspicuously erect, thus plainly showing the netting-poacher, who is sure to be on the look-out, where he may expect the best luck during the night. While this work is being carried on, you may see some fellow, often dressed more like a schoolmaster than a poacher, lounging listlessly about the lanes, leaning against the gates and smoking his pipe. You never suspect that any sporting propensities can be concealed under the high-crowned beaver and swallow-

tailed coat of this classical-looking gentleman, who seems to be merely enjoying the beauty of the evening, although all the while he is watching with the eyes of a lynx the unsuspecting partridges as they run about calling to each other preparatory to going to roost. The fellow is thus able to form a pretty good guess as to where half-a-dozen coveys may be netted; and he returns to his confederate, who in the meantime has been equally usefully employed at some alehouse or elsewhere in preparing and mending the nets. "Dressing" for the occasion, as it is termed, is now become by no means an uncommon practice near large towns in England, and many a pheasant preserve is laid waste by Methodist parson-like fellows, whose black coat-pockets and clerical-looking hats contain, instead of sermons, neatly-coiled piles of horsehair nooses ready tied on a line long enough to be run across a large extent of cover, at the favourable moment when the keeper, of whom they have just asked the way to the rectory, has gone about his business in some other direction.

By such means as these a great part of the game is obtained which we see hung up in such immense quantities in all the poulterers' shops. A game-keeper cannot be too curious and inquisitive as to the business and movements of all strangers about

his ground, whether dressed in a fustian jacket and leather leggings, in a rusty suit of black, or in a blue swallow-tail with gilt buttons. By watching unseen an idler of this sort, a keeper may frequently find out some projected manœuvre against his pheasants and partridges.

There has been of late a great cry out against game and game-laws, gamekeepers and game-preservers. In fact, the mere word "game" is sufficient to excite the bilious indignation of half the newspapers in the United Kingdom, and more especially of those whose claims to popularity are founded on the loudness and virulence of their abuse of what they term "the aristocracy of the kingdom."

I am very far from being an advocate for carrying out the system of preserving game to the extent which is frequently done, where woods as full of pheasants as a poultry-yard is of chickens afford no real sport, and where, instead of the amusement of hunting for and finding your game, your only employment is the mere act of shooting them, the birds and hares being as tame and as easy to kill as so many domestic fowls. At the same time, if proprietors like to go to the expense and trouble of keeping innumerable pheasants and hares, I cannot see why they should not be allowed to

indulge their taste, without being held up to public censure by those whose taste happens to be different, as is so frequently the case.

It is not the farmers who complain of the game: they have a fair and I believe a legal right to compensation for all the mischief it does them; and I do not think that this claim is often, if ever, refused to be acknowledged by the game-preserver. In fact, it is his interest to keep on good terms with the occupier of the land, even if his sense of justice did not induce him to do so, as the farmer and tenant are able to destroy more game, in the shape of eggs and young birds, during the breeding season, than the proprietor and all his friends could shoot in a twelvemonth. They can do this, too, without exposing themselves to any risk of paying penalty for infraction of the game-laws. As far as my own experience extends, I have never found tenants looking upon the preservation of game as so great a nuisance and source of loss as they are represented to do by many writers on the subject, who for the most part advance as facts statements which are either utterly untrue, or, at the best, are twisted and exaggerated to serve their own purposes. Leases are always entered into by farmers with their eyes well open to every chance of loss which they are likely to sustain from the game,

and stipulations are made accordingly. In fact, the proprietor of the game is almost invariably the person who, directly or indirectly, pays for its keep: this price it is right that he should pay for his amusement, and the cases, I believe, are very rare in which any objection is made to doing so.

In considering this subject, it should also be borne in mind that in these days game is a source of profit and income to so many persons that it ought to be under legal protection, as much so as any other kind of property. The trespasser in pursuit of game renders himself liable to certain penalties with as perfect a knowledge of the risk he runs as the man who steals from the hen-roost. It is often argued that poaching is the first step to many worse crimes; so is picking pockets. Pheasants are great temptations, and so are pocket-handkerchiefs; and a man has as much right to breed pheasants in his woods as to walk down the Strand with a silk pocket-handkerchief in his pocket. It is very true that the pheasant-stealer may become a highwayman, and in like manner the picker of pockets may become a burglar; but in neither case should the minor crime be permitted to go unpunished in a vain hope of decreasing the frequency of the greater. Men are very seldom impelled by actual want to take up poaching as

a trade; they are almost always led to it by a natural lawlessness of disposition and a disinclination to labour, or else by a wish to earn the means of indulging in drinking and low profligacy, in the same manner as the young Levi or Moses who picks your pocket spends the proceeds of his booty in some den of infamy in town. I allude, of course, in all I have said, not to the illegal follower of game who is led to do wrong by sportsman-like feelings, but to the desperate and systematic poacher who acts from mere love of gain and an utter contempt of right and law, and who too frequently would as soon maltreat or kill a gamekeeper who performs his honest duty, as he would shoot a hare. The savage encounters that occasionally occur are invariably commenced by the most lawless and dissolute class of poachers, whose sole object is plunder, and who have not a particle of that love of sport in their composition which so frequently leads the comparatively blameless trespasser into the hands of the law.

I have entered perhaps too far into a worn-out and unpleasant subject, but I have been led to do so by the honest conviction that, *in property of this sort at least*, every man has a right to "do what he likes with his own," provided his neighbour does not suffer thereby.

Rabbits and hares are, like winged game, subject to epidemics, which frequently carry off great numbers. Their diseases can generally be traced to the wet weather or other obvious causes, though sometimes, indeed, these animals disappear almost entirely from a district without any ostensible cause; whether they migrate or perish by disease is a mystery.

Of late years the mountain-hares in Scotland have increased in some places to an almost incredible degree, and hare-shooting in the mountains has occasionally taken the place of grouse-shooting, the birds having died off, while the hares have flourished. Grouse and the mountain-hare feed on very nearly the same food. This circumstance tends to corroborate the supposition that the epidemic amongst grouse is by no means occasioned by any failure in the growth of the heather.

In many parts of Scotland an old blackcock is almost uneatable, his flesh having so strong a flavour of juniper: where, however, this plant does not abound, the black game, feeding on grain and other seeds, are as good for the table as any other kind of game. Although the blackcock and capercailzie frequently breed together, and mules between the pheasant and black grouse are, though rare, occasionally seen, I have very rarely found

a well-authenticated case of a mule bird bred between the grouse and blackcock being killed. In most instances in which birds supposed to be hybrids between these two species have fallen under my observation, they appeared to me to be merely gray hens, whose plumage had become like that of the cock. I have seen birds of this kind in the Edinburgh Museum and elsewhere; and I saw one killed this autumn (1848), which had very much the appearance of a hybrid, but on closer examination I came to the conclusion that it was merely an old gray hen, who had changed her appearance, as the hen-pheasant does. This latter bird, we all know, is very frequently killed in different stages of change towards the male plumage. The same is the case with the common domestic fowl and the peahen. It is difficult to account for the cause of this transformation. We know that it does not arise from any disease or ill-health, as the birds in their borrowed plumage are always in as good condition as any others.

It is very rare indeed to find any wild animal subject to illness, with the exception of the epidemics before alluded to. Unless they are wounded and unable to hunt for their own food, all wild birds and animals keep themselves plump and healthy. The wood-pigeon is indeed frequently

subject to a kind of cancer and growth on their bills and about the eyes, which eventually destroys them; but I attribute this disease to feeding on the beech-mast, which is probably too heating a food for the young birds. The old wood-pigeons are seldom if ever attacked by this disease, notwithstanding their great fondness for beech-mast and acorns.

Wood-pigeons are not so much valued for the larder as they deserve to be. They are excellent eating at all seasons, excepting when driven by snow to feed on the turnip leaves. Since the destruction of vermin and the increase of fir plantations, they have grown very numerous in many parts of the country, where, a few years ago, they were comparatively rare. It is, however, difficult to kill many of them during the winter and autumn, when they are collected in flocks, their safety resulting rather from their timidity than from any excess of cunning.

Most birds, while feeding in flocks, appoint sentinels, whose duties appear to be perfectly understood, as well by the guards as by the guarded: red-deer, too, whilst resting, usually place a young stag as sentinel, and do not allow him to lie down or leave off his vigilant watching, which often lasts a considerable time. Those at rest appear to be

perfectly unconcerned and at their ease, and to depend entirely on the watchful eyes and ears of their sentry.

In the same way wild-geese, while feeding on the open fields, invariably leave one bird to keep watch, and most faithfully does she perform this duty. Keeping on some high spot of the field she stands with neck perfectly erect, watching on all sides, and listening to every sound far or near. Nor does she attempt to snatch at a single grain, however hungry she may be, till one of her comrades thinks fit to relieve her guard; and then the former sentinel sets to work at her feeding with an eagerness which shows that her abstinence while on duty was the result not of want of appetite, but of a proper sense of the important trust imposed on her. If any enemy or the slightest cause of suspicion appears, the sentry utters a low croak, when the whole flock immediately run up to her, and, after a short consultation, fly off, leaving the unfortunate sportsman to lament having shown the button of his cap or the muzzle of his gun above the bank of the ditch, along which he had perhaps been creeping, "suadente diabolo," for the last half-hour up to his knees in water, well iced to the temperature of a Scotch morning in February. Thus also wild-ducks, curlews, crows, and almost all birds when feeding in

flocks, leave sentries, on whose vigilance the rest entirely depend, taking no heed of anything around them, but feeding in conscious safety. Nor is it necessary for a cry of alarm to be given, as the flock perfectly understand what is going on by the actions or looks of the one who is watching, distinguishing at once whether the sentry is intent on some sound or object at a distance, or whether the danger is imminent and pressing. It is not only by the voice and action of birds of *their own* kind that flocks of wild-fowl guide their actions: the startled movement or cry of a redshank or peewit is sufficient to put on wing a whole flock of geese or ducks instantaneously, and also to tell exactly from what point the danger is to be apprehended.

CHAPTER XXIX.

The Landrail ; Arrival and Habits of—Cuckoo—Swift—Associations connected with Birds—Enjoyment of Life by Birds—Falcons—Water-fowl ; their different modes of Swimming—Wild-fowl shooting—Wounded Ducks—Retrievers ; care which should be taken of them—Plumage of Water-fowl ; its imperviousness to wet ; the cause and limits of this.

THE landrail is one of the most numerous and most regular of our birds of passage. For several seasons the 1st of May has been the earliest day on which I have noticed them. At first I hear a single bird or two croaking in some small patch of early wheat or long clover : their numbers then increase rapidly every day. In the early morning I see them along the sides of the paths, and more particularly near grassy ditches. The rapidity with which this bird threads its way through thickly-growing clover is astonishing. With head crouched to the ground it glides, in a horizontal position, almost with the quickness of an arrow, scarcely moving the grass as it passes through it. One moment he is at your feet, and the next he is standing far off, with erect head and neck, and

croaking with a voice of brass. By the end of May or the beginning of June every field is full of them; and the noise they make during the night time, or after a shower of rain, is incessant. By the middle of August they become quiet; and the corn being high, they are then seldom seen. Before the crops are carried they have almost entirely disappeared, having left the country quietly and unseen. Sometimes during the shooting season a landrail rises in some very unexpected place, and they are then as fat as it is possible for a bird to be. On their first arrival also they are in good condition, till the business of breeding commences, when they become comparatively lean.

Though the voice of the landrail is *per se* so peculiarly harsh and grating, there are few birds whose note falls more pleasantly on my ear—associated as it is with the glad season of spring and summer. The monotonous cry of the cuckoo has nothing delightful in it beyond recalling to the mind pleasing ideas of spring and woody glades; yet I believe every one listens to this bird with pleasure. From seeing and hearing so many of them about the wild rocks and glens of Scowrie and Assynt, the cuckoo now always brings that rugged district before my eyes, instead of the tranquil groves where I formerly had seen it. The nest, which of all others

the knavish cuckoo prefers to lay her eggs in, is that of the titlark; and in Scowrie and Assynt those birds abound.

Another bird, whose cry is invariably associated by me with one kind of locality, is the swift. I never hear the loud scream of this bird without having some well-remembered steeple or other lofty building brought vividly before my mind's eye: thus, also, the martin and swallow recall the recollection of some favourite stream, whose waters abound in trout, and whose banks swarm with the May-fly and gray drake.

The crow of the grouse is as inseparable in my mind from the mountains of Scotland, as the song of the ring-ousel is from its birch-covered glens, or the spring call of the peewit from the marshy meadows.

There is, I think, great pleasure in thus recollecting by the sounds and notes of living animals scenes which the eye has dwelt upon with delight, and so constant is every bird to its own locality, that the associations thus called forth are invariably correct.

In preserving game, quiet and food are the two things to be attended to. No animals will remain in places where they are frequently disturbed; vicinity to favourable feeding-ground is also a *sine*

quâ non. In large and extensive tracts of wood, where there are miles of unbroken forest, birds are always rare, excepting indeed some of the far-wandering hawks, whose strong wings enable them to pass over miles of country with little exertion. Even birds of prey are more inclined to take up their abode near the outskirts of a wood than in its densest solitudes.

In winter large flocks of the long-tailed titmouse, the golden-crested wren, and other birds of similar insect-searching habits, flit from tree to tree, passing, in an unbroken multitude for hours together, hanging in every possible attitude from the branches while searching for their minute prey, and enlivening the solitude with their bright wings, and with their merry chirp, so expressive of pleasure, as they flutter from tree to tree. I believe that all wild-birds live in a state of constant enjoyment when unmolested by animals of prey, biped or quadruped, and even then their terror or pain is but of short duration, having no anticipation of the coming evil, or much remembrance of it if fortunately they escape. The snows of winter sometimes indeed shut up their sources of food; but it is rare, at least in this country, that plenty of open ground is not left for the wants of all the wild animals.

The falcon at earliest daybreak, after enjoying

for a short time the morning sun, shakes her feathers once or twice, plumes her wings, and then launching herself into the air, passes with straight and direct flight to the most favourable hunting-ground. Some unfortunate grouse or plover is soon struck down. The first act of a falcon on striking and catching a bird is, if any life remains, to dislocate its neck; and thus its pain is immediately over. Oftener, however, the falcon strikes her chase while in the air, killing it perfectly dead instantaneously. Indeed all the long-winged hawks prefer striking their prey in the air, seldom dashing with the same confidence at a bird on the ground. Having well filled her crop, the falcon flies back to some favourite stone or projection of rock on the cliffs, and there sits in a state of quiet satisfaction for the rest of the day, perched in a situation where no danger can approach her unperceived.

There must be great enjoyment, too, in the flight of the eagle and buzzard, as they soar and float for hours together at a height that makes them appear no bigger than a lark. The latter bird, too, seems the very personification of happiness, as, uttering its merry and sweet song, it mounts higher and higher till lost to sight.

But no birds seem to enjoy life more than water-fowl; floating without exertion in perfect security

in the midst of a calm lake, or riding, as buoyant as a cork, on the waves of the sea.

When looking at wild-fowl on the water, it is generally easy to distinguish what kind they are, even from a great distance. Scarcely any two species swim or float in the same manner, and at the same elevation above the surface of the water. Coots and sea-gulls float like bladders, with scarcely any of their body immersed; so much so that it is almost impossible to mistake one of the former at any distance at which a bird can be distinguished. The divers, such as the cormorant, the black-throated diver, and others of the same kind, swim very flat in the water, showing scarcely any part except the top of their back, and their head and neck, which all these birds carry straight and erect, seldom or never bending and arching their throat like ducks or geese. In consequence of their swimming so low in the water it is difficult to kill any of these diving birds, unless you can get at them from a rock or height above them. Widgeon swim rather flat and low in the water. Mallards and teal keep more of their bodies above it, and are in consequence easier to kill while swimming. Pochards, scaup ducks, and others of that kind, swim higher still, but are very strong swimmers and difficult to catch when only winged, diving incessantly, and going out to the

middle of the lake or pond, unlike the teal or mallard, who invariably, when winged or otherwise wounded, make for the land, if the sportsman keeps out of sight, and endeavour to hide themselves in the grass at the water's edge. Geese, when winged, dive with far greater quickness and facility than would be expected, and I have had very great trouble in catching a wild-goose on a lake after I had knocked her down, although I was rowing in a light and easily-managed boat. Careful observation of the different manner of swimming adopted by the several kinds of wild-fowl when wounded is of the greatest use to the sportsman, saving him and his retriever many a weary and often useless wetting. Even with the best water-dog it is frequently of no avail to attempt to catch winged ducks of any kind. In cold weather, when the water is rough and the birds get a good start in an open lake, it is not only loss of time but is cruel to urge your dog to follow them too long. I have often succeeded in bagging winged ducks, widgeon, and teal, by walking round the edge of the lochs an hour or two after I had shot them, as the birds, when left to themselves, the rest of the flock having gone away, either leave the water and hide in the grass, or else come close to the edge.

It occasionally happens in a small pool that a

winged wild-duck goes under and never appears again, having become entangled in the weeds, etc., at the bottom.

Wild-fowl seldom live any length of time after they are winged, as they generally fall a prey to foxes and other vermin, all of whom have a habit of hunting round lakes and swamps during the night, when the wounded birds quit the deep water to feed in the shallows or marshy places.

That beautiful bird the pintail is also a very quick diver and strong swimmer when wounded. It is a good rule in wild-fowl shooting always to endeavour to get shots at the birds either when they are on dry land or when it is probable that they will fall upon it. In the first place, no bird is so easy to kill whilst swimming as whilst standing or walking, as then all the body is exposed; and in the second place so much time is lost, and so much disturbance caused by pursuing the wounded birds, and even by getting the dead ones out of the water. Besides, it is almost a matter of certainty that when they are shot over the water some of the killed birds will be lost; and however good a water-dog your retriever may be, and however hardy, the less swimming and wetting he gets the better. Nothing is so ill-judged and useless as sending a dog into the water without good reason for it; doing so is

always taking something, more or less, from his strength and injuring his constitution. When standing waiting for ducks in cold weather the poor animal has no means of drying or warming himself, and lies shivering at your feet, and laying up the foundation of rheumatism and other maladies.

A dog who has much water-work to do should always be kept in good condition, and, if possible, even fat. It is a mistake to suppose that allowing him to come into the house and warm himself before the fire makes him less hardy; on the contrary, I consider that getting warm and comfortable before the kitchen fire on coming home gives the retriever a better chance of keeping up his strength, health, and energy, when much exposed to cold and wet during the day; a far better chance, indeed, than if, on returning, he is put into a cold kennel, where, however well supplied with straw, hours must elapse before he is thoroughly warm and dry. Most rough dogs stand cold well enough as long as they are tolerably dry, but frequent wetting is certain to cause disease and rheumatism. I am sure too, with regard to water dogs, that a good covering of fat is a far more efficacious means of keeping them warm than the roughest coat of hair that dog ever wore. In wild animals, such as otters, seals, etc., which are much exposed

to wet in cold countries, we always find that their chief defence against the cold consists in a thick coating of fat, and that their hair is short and close. In like manner dogs who are in good condition can better sustain the intense cold of the water than those whose only defence consists in a shaggy hide. Short-coated dogs are also the most active and powerful swimmers, and get dry sooner than those who are too rough-coated.

The imperviousness to wet of the plumage of wild-fowl is evidently not caused by any power which the birds have of supplying grease or oil to their feathers. The feathers have a certain degree of oiliness, no doubt, but from frequent observation I am convinced that it is the manner in which the feathers are placed which is the cause of the water running off them as it does.

As long as a wild-duck of any kind is alive, his skin remains perfectly dry whilst he is in the water, although from the situation in which he may be placed—being pursued, for instance—it is quite impossible for him to find time to "oil his plumage," as some authors assert he does, "in order to keep out the wet;" but the moment a duck or water-fowl is dead the water penetrates through the feathers, wetting the animal completely. If one wing is broken, the feathers of that wing immedi-

ately become soaked with wet, the bird not having the power of keeping the feathers of the broken part in the proper position to resist the entry of the water. We all know that birds are able to elevate, depress, and in fact to move their feathers in any direction by a muscular contraction of the skin. When this power ceases they hang loosely in every direction, and the wet enters to the skin.

The otter's skin never appears to be wet, however long the animal may remain in the water; but, like the plumage of birds, soon becomes soaked through when the animal is dead. Whilst he is alive the water runs off his hair exactly as it does from the back of a bird during a shower. When we find any bird or animal with its feathers or hair wet and clinging together, it is a sure sign that the poor creature is either diseased or is suffering from some wound or accident.

CHAPTER XXX.

Taming and Education of Wild Animals—The Eagle ; his want of docility—Courage and Intelligence of the Noble Falcons —The Hound—Return of Cats to their home—Maternal Instinct of Cats—The Carrier-pigeon—Wood-pigeons—Dovecot Pigeons—Sight of Pigeons—Blue-rock Pigeons—Crested Titmouse—The Robin ; pugnacious disposition of—Sparrows ; impudence of.

Almost every wild animal is more or lese capable of being reclaimed, and rendered, if not of actual use to us, at least an object of interest and amusement. In all attempts to educate them, patience and temper on the part of the teacher is the first requisite. If, fortunately, he be endowed with this important qualification, he will scarcely find any bird or beast so wild or so obstinate "*ut non mitescere possit.*" But some, it must be admitted, scarcely repay the labour bestowed upon them. The eagle can be tamed, but to no great extent. Naturally of a greedy and craving disposition, he is not to be depended upon at all times ; and though he may show a certain degree of affection for his keeper, he can seldom be safely approached by strangers.

An eagle, although he may have been trained for

a long time and with great care for the purpose of hunting, is just as likely to swoop at and kill his master's dogs, or even to attack a man himself, as to fly at any game. In this he differs from the falcons, that is those of the hawk tribe, who are called "noble falcons," in contradistinction to those termed "ignoble." The Iceland, the Greenland, the peregrine, and the merlin also, are all "noble falcons." The latter, formerly in high repute for the chase, is now so seldom seen in this country, either alive or dead, that little is known as to his merits; but the other noble hawks whom I have enumerated are all of a most kindly and tractable disposition, and possess that great courage which gives them the full confidence in man which is necessary for their education. These birds have also great aptitude to receive instruction; their habits are social, and before they have been long in confinement they become perfectly contented with their lot. When out in the field, a trained hawk is in no way flurried or alarmed by the movement of men or dogs, but sits looking, when unhooded, with calm confidence on all that is going on around him; and although his fine dark eye evinces neither fear nor disquietude, not the smallest bird can pass without his immediately descrying it, and intently watching it until it is lost in the distance—and great

must that distance be which conceals any bird from the falcon's eye. I have often fired my gun off at a bird, with a hooded hawk sitting on one arm, without his evincing the least fear or uneasiness,—as great a proof of his courage as need be required. In fact, a hawk, like a dog, soon learns to look upon her master as her best friend.

When a well-trained hawk has pursued a bird to any distance out of sight of her master, and misses catching it, she invariably flies straight back to the place whence she was first started. I scarcely know a more pleasing sight than to see the falcon returning with direct and rapid flight, searching for her master in the exact spot, although in a strange and new country, where she had last seen him. If, however, she has killed a prey, this quick return does not take place, and the falconer must follow as straight as he can in the line of her flight; by doing so he will seldom fail to find her. A hound, in the same way, after a chase of many hours' duration, if he lose the huntsman, will always return to the spot he started from.

The instinctive power possessed by so many animals of finding their way back again, either to their accustomed home or to the place from which they had started, appears almost inexplicable, as in many instances it is certain that they cannot

be guided by any sense analogous to those which we possess. Well-authenticated instances of dogs and cats, and horses also, finding their way back from great distances to their home, although the mode in which they have been conveyed from it has deprived them of all assistance from their organs of sight, are so frequent as scarcely to excite attention; and yet how wonderful must be the intelligence which guides the animal!

One of the most unquestionable instances of a cat's displaying this faculty which has come under my own immediate observation was that of a kittten about three parts grown, who certainly had never been in the habit of going ten yards from the house door. Wishing to get rid of her, I sent her in a bag to a person who lived more than two miles from my own residence. Although the cat travelled over a road perfectly unknown to her, and in a bag, which entirely prevented her seeing anything, she was the next morning purring about as usual, and claiming attention in the kitchen, as if she had never left it.

Another curious instance of a cat's travelling capabilities fell under my notice. By some means she discovered the place to which her kitten had been taken, more than a mile off; and every night the poor mother went to suckle her young one,

returning, when the process was over, to perform the same service to another kitten left at home. In this instance the cat lived in a large town, through some of the streets of which, as well as a good mile of the outskirts, she had to take her nightly walk. Many a danger from boy and dog the poor animal must have gone through during her peregrinations; nothing, however, stopped her as long as the kitten required her maternal attention. Notwithstanding these amiable traits in the feline character, I must condemn the cat as an animal who in general repays all the care and kindness of her master with but little strength of affection. Indeed her instincts seem to attach her only to the fireplace or loft in which she has been accustomed to live, and not to the kind hand which feeds her. Some instances of love for their owners I have known; but, in comparison with that shown by dogs, they are rare and slight, although the domestic bringing-up of, and kindness shown to, cats is often greater, and less mixed with the severe correction often inflicted upon dogs.

The sense which leads the carrier-pigeon hundreds of miles in so short a time, and in so direct a course, is inexplicable. After circling for a few moments, the bird decides unhesitatingly on its exact line of flight, though it may never have seen

the country before, and has not the assistance of the example and guidance of any more experienced companions, as is always the case with migrating birds.

The carrier-pigeon is very beautifully shaped, with broad chest and most powerfully jointed wings. Except as to the head and feet, this kind of pigeon has very much the form of a falcon, and is peculiarly well fitted for long-continued and rapid flight.

The wood-pigeons in this country are to a certain degree migratory, imitating, *longo intervallo*, the American passenger-pigeons, in shifting their quarters from one part of the kingdom to another, being influenced in their migrations by the abundance or scarcity of food.

The common dove-cot or blue pigeon generally flies several miles, morning and evening, to favourite feeding-places, seldom seeking for food in the immediate neighbourhood of the pigeon-house. In the months of May and June the house-pigeons have most difficulty in procuring food, the crops being all unripe, and none of the seed-corn remaining on the surface of the ground. At this season, too, few weeds have ripened; and the pigeons have therefore to depend in a great measure for their own subsistence and that of their young on the minute seed of the turnip, which is sown at this period.

It must require no little labour to enable them to fill their crops with this small seed. As in this country the turnip-fields are for the most part drilled and rolled, the poor birds have the greater difficulty in satisfying the hunger of their young ones; and no young bird requires so much food as an unfledged pigeon, in proportion to its size and weight.

The power of the pigeon to alter the focal length of its eye must be very great, as it is able to see equally well an object at a distance of many miles and a minute seed not more than half an inch from the end of its bill.

The turtle-dove is sometimes, but only rarely, met with as far north as Morayshire, but the stock-dove is never seen in that part of the country: if once introduced, I should imagine that it would thrive perfectly well, as both the climate and the natural productions of the district are suited to it.

The hardy little blue-rock pigeon abounds on all the sea-coast of Scotland, where the rocks are steep and broken into fissures and caverns—one moment dashing into its breeding-place, and rapidly flying out the next; then, skimming the very surface of the breakers, this little bird gives animation and interest to many a desolate and rugged range

of cliffs as far north as Cape Wrath and Whiten Head. It abounds also in most of the islands. Frequently living where there is little cultivated ground, the blue-rock pigeon feeds on many green plants, and I have also found its crop nearly full of small shells. Whatever its principal food may be, it is a particularly well-flavoured and delicate bird, and much superior in this respect to either the dovecot-pigeon or the wood-pigeon.

A very beautiful little bird, and one not generally known to breed in Britain, is the crested titmouse. From the number of specimens which have been procured by Mr. Dunbar from the woods of Strathspey it is evident that this bird must be there in great abundance, although it does not appear to extend its visits to other parts of the country, with the exception of the woods about Dulsie on the Findhorn. In these picturesque and beautiful woods the crested titmouse is found, but not in such numbers as in Strathspey. Its habits are the same as those of the other species of tomtits, searching actively among the fir-trees for insects, and hanging from the branches in every possible attitude, probing every crevice with its tiny but strong bill. All the kinds of titmice are very carnivorously inclined, feeding greedily on any dead bird or other animal which they may meet with. Our favourite, the

robin, is not much behind them in this respect, having a very great partiality for raw meat and dead animals.

Although so much protected, and in fact enjoying an almost entire immunity from all human persecutors, the robins do not appear to increase in numbers; this is, in all probability, occasioned by the bird generally breeding on the ground, and being thereby exposed to the attacks of weasels, rats, etc. Were it not for this, the almost sacred character the robin has always held amongst bird-nesting schoolboys and juvenile sportsmen must have caused its numbers to increase; but we still see the same dead branch or the same railing-head occupied by a single robin year after year; no rivals spring up to dispute the favourite perch.

Of all pugnacious birds the robin is the most determined fighter. When snow and frost cover the ground, and we feed the birds at the windows and on the gravel walks, thrushes, blackbirds, sparrows, and many other birds come to share the crumbs, but none dare eat if any robin is there, until the fiery little fellow permits him. Thrushes and all are beaten and driven away, and even after he has crammed himself to repletion, the robin will sit at the window and drive away with the most furious attacks every bird whose hunger prompts

him to try to snatch a morsel of his leavings. Perched amidst the crumbs, he looks the very personification of ill temper and pugnacity. The thrush, on the contrary, allows every bird to feed with him, and puts on a complaining but not an angry look when an impudent sparrow or tomtit snatches the morsel of bread from his bill.

In large towns it is curious to see how accustomed sparrows become to all the noises and sights by which they are surrounded. You see a flock of sparrows feeding in the middle of a paved street, an omnibus comes rattling along, shaking the very houses and making din and noise enough to deafen a miller, yet the sparrows merely hop out of reach of the wheels, and do not take the trouble to go a yard farther. Knowing, either from instinct or long experience, that they are safe from gun or trap, where every passer by is too intent on his own more important matters to waste a thought upon them, they become most impudently confident of their own safety.

Like all other birds, sparrows adapt themselves without difficulty to whatever place they happen to live in. In towns they make their nests in curious holes and corners under the tiles and roofs of the houses, or about the projections and carvings on churches and old buildings. In country villages

they delight in holes in thatched roofs or in corn-stacks, while in less populous localities they build almost wholly in trees, and even in hedges not many feet from the ground, keeping, however, a watchful and knowing eye to the security of the place they fix upon for their loosely-made and conspicuous nest. There seems to be one *sine quâ non* in the choice of their abode, and that is the vicinity of man. Sparrows never wander very far from houses and towns; in fact this bird appears to be more at home on the roof of a house in the midst of a populous city than in any other situation. Basking in the sun on a lofty wall or house-top, a flock of sparrows look down upon the crowded streets with a pert, impudent air, chattering and chirping to each other as if making their remarks on the busy throng below them, and seem as perfectly at their ease in the midst of the noise, bustle, and smoke, as the impudent set of schoolboys who look up at them with a longing eye.

CHAPTER XXXI.

Instinct of Birds—The Woodcock carrying her young—Herons—Water-ousel—Nest of Golden-eye Duck; Habits of Birds—Talons of Falcons and Hawks—Stuffed Birds—Plumage, etc., of Owls—The Osprey and Sea Swallow—Manner of Fishing—Carrion-feeding Birds—Manner of finding their Food—The Eagle—Sense of Smell in Birds—In Ducks and Geese—Power of communicating with each other—Notes of alarm—A few words respecting destroying Hawks, etc.—Colour of Birds adapted to concealment—Instinct of Birds finding Food—Red-deer—Tame Roebuck.

MANY people doubt the fact of the woodcock carrying her young from the wood to the swamp in her feet, and certainly the claws of a woodcock appear to be little adapted to grasping and carrying a heavy substance; yet such is most undoubtedly the case. Regularly as the evening comes on, many woodcocks carry their young ones down to the soft feeding-grounds, and bring them back again to the shelter of the woods before daylight, where they remain during the whole day. I myself have never happened to see the woodcocks in the act of returning, but I have often seen them going down to the swamps in the evening, carrying their young with them. Indeed it is quite evident that they

must in most instances transport the newly-hatched birds in this manner, as their nests are generally placed in dry heathery woods, where the young would inevitably perish unless the old ones managed to carry them to some more favourable feeding-ground. Both young woodcocks and snipes are peculiarly helpless birds, as indeed are all the waders, until their bills have hardened, and they have acquired some strength of wing and leg. Unlike the young of partridges and some other birds, who run actively as soon as hatched, and are able to fly well in a very short time, woodcocks, snipes, and waders while young are very helpless, moving about with a most uncertain and tottering gait, and unable to take wing until they are full grown. Their growth is, however, extremely rapid.

Snipes, redshanks, and several other birds of this genus are hatched and brought up on the same kind of ground on which they feed; but woodcocks, in this country at least, are generally hatched far from the marshes, and therefore the old birds must, of necessity, carry their helpless young to these places, or leave them to starve in the dry heather: nor is the food of the woodcock of such a nature that it could be taken to the young from the swamps in any sufficient quantity. Neither

could the old birds bring with it the moisture which is necessary for the subsistence of all birds of this kind. In fact they have no means of feeding their young except by carrying them to their food, for they cannot carry their food to them.

The foot of the heron, as well as its general figure, seems but little adapted for perching on trees, and yet whoever visits a heronry will see numbers of these birds perched in every kind of attitude, on the very topmost branches of the trees. The water-ousel manages to run on the ground at the bottom of the water, in search of its food. All these actions of birds seem not only difficult, but would almost appear to be impossible. Nevertheless the birds perform them with ease, as well as many others equally curious, and apparently equally difficult.

The feet of ducks are peculiarly ill adapted for perching on trees; nevertheless the golden-eye duck generally breeds in hollow trees, not only in broken recesses of the trunk, easy of access, but even in situations where, after having entered at a narrow round aperture, she has to descend for nearly an arm's length, almost perpendicularly, to reach the nest. Through this same entrance also has she to take her young ones when hatched, before they can be launched on their natural element—water.

I could give numberless instances of birds and other animals performing actions and adopting habits which to all appearance must be most difficult and most unsuited to them; all these prove that we are not to judge of nature by any fixed and arbitrary rules, and still less should we attempt to bring all the countless anomalies of animal life into any system of probabilities of our own devising. The more we investigate the capabilities of living animals of every description, the more our powers of belief extend. For my own part indeed, having devoted many happy years to wandering in the woods and fields at all hours and at all seasons, I have seen so many strange and unaccountable things connected with animal life, that now nothing appears to me too wonderful to be believed.

The feet and claws of different kinds of hawks vary very much, being beautifully adapted to the manner in which each bird strikes its prey. If we examine the claws and feet of the peregrine falcon, the merlin, or any of the other long-winged hawks' including the varieties of those noble birds, all of whom I believe were called in the age of falconry "The Ger Falcon," such as the Iceland, the Greenland, and the Norwegian falcon, we find that their power consists rather in their strength of talon and foot than in the sharp needle-like claws of the hen-

harrier, the sparrow-hawk, the goshawk, etc. The rationale of this difference seems to be that the falcons strike their prey by main force to the ground in the midst of their flight; whilst the other hawks usually pounce on the animals on which they feed, and take them unawares on the ground instead of by fair pursuit and swiftness of wing. The sparrow-hawk and hen-harrier seldom chase a bird to any distance on the wing.

I have spoken of the peregrine, the Iceland, the Greenland falcon, and also the falcon of Norway, as being distinct species. This, however, is a point to be decided by naturalists more skilful in the anatomy and osteology of birds than I am myself. *Scribimus indocti!* My remarks are merely the result of my own unscientific observations, aided by the inspection of the numerous and beautifully-prepared specimens of my friend Mr. Hancock, who, I believe, I may safely assert is the best stuffer of birds in the kingdom. The examination of his collection has been a source of great pleasure to me, but it has also had the effect of making me dissatisfied with the performances of all other preservers of birds. A bird, when it is stuffed and "set up," as they term it, ought to be "aut Cæsar aut nihil." A bird stuffed in a second-rate manner is a very valueless and unsatisfactory affair; and it would be

far better, for the furtherance of natural history, if people, instead of having a rare bird badly stuffed and put into a distorted shape and attitude, with projections where no projections should be, and hollows where there should be none, would be content to keep merely the skin just sufficiently filled with cotton or tow to prevent its shrinking.

The owls have all extremely hard and needle-like claws, and in every respect the bird is singularly well adapted for its manner of feeding, which it does almost wholly at night. Its immensely large ears must enable it to hear the slightest movement of the field-mouse, upon which it chiefly feeds; and its sharply-pointed talons contract with a tenacity and closeness unequalled by those of any of the hawk tribe, excepting perhaps the hen-harrier. Again, the soft downy feathers and rounded wings of the owl enable it to flit as noiselessly as a shadow to and fro, as it searches for the quick-eared mouse, whom the least sound would at once startle and drive into its hole, out of reach of its deadly enemy. As it is, the mouse feeds on in heedless security, with eyes and nose busily occupied in searching for grains of corn or seeds, and depending on its quickly sensitive ear to warn it of the approach of any danger. The foot of man, or even the tread of dog or cat, it is sure to hear; but the owl glides

quickly and silently round the corner of the hedge or stack (like Death, tacito clam venit illa pede), and the first intimation which the mouse has of its danger is being clasped in the talons of its devourer.

The owls of this country are far more serviceable to us than we imagine, destroying countless mice and rats. It must be admitted, however, that both the long-eared owl and the common brown owl will, during the time that they have young ones to feed, destroy and carry off pigeons, young game, and other birds, with a determined savageness equal to that evinced by any of the hawk tribe.

The rough and strong feet of the osprey are perfectly adapted to the use which they are put to, that is, catching and holding the slippery and strong sea-trout or grilse. The fact of a bird darting down from a height in the air, and securing a fish in deep water, seems almost incredible, especially when we consider the rapidity with which a fish, and particularly a sea-trout, darts away at the slightest shadow of danger, and also when we consider that the bird who catches it is not even able to swim, but must secure its prey by one single dash made from a height of perhaps fifty feet.

The swiftest little creature in the whole sea is the sand-eel; and yet the terns catch thousands of these fish in the same way as the osprey catches the

trout, excepting that the tern uses its sharp-pointed bill instead of its feet. I have often taken up the sand-eels which the terns have dropped on being alarmed, and have invariably found that the little fish had but one small wound, immediately behind the head. That a bird should catch such a little, slippery, active fish as a sand-eel, in the manner in which a tern catches it, seems almost inconceivable; and yet every dweller on the sea-coast sees it done every hour during the period that these birds frequent our shores. In nature nothing is impossible; and when we are talking of habits and instincts, no such word as impossibility should be used.

I never could quite understand the instinct which leads carrion-feeding birds to their food. We frequently see ravens, buzzards, and other birds of similar habits congregating round the dead body of an animal almost immediately after it has ceased to live; and therefore I cannot agree with those naturalists who assert that it is the sense of smelling which leads these birds to their feast. From my own observation I am convinced that this is not the case, as I have known half-a-dozen buzzards collect round a dead cat on the afternoon of the same day on which it had been killed, and this, too, during the winter season, when the dead animal could have emitted no odour strong enough

to attract its devourers. I am far more inclined to attribute their facility in finding out their food to a quick sense of sight. For the sake of catching these birds and the gray crows also, I was accustomed to have the dead vermin thrown out into a field near the house, where traps were placed round them. When the cats were skinned, and therefore were the more conspicuous, the carrion birds usually found them out the same afternoon. Now buzzards, ravens, and other birds who feed on dead bodies are in the habit of frequently soaring, for hours together, at an immense height in the air, wheeling round and round in wide circles. I have no doubt that at these times they are searching with their keen and far-seeing eye for carcases and other substances fit for food. The eagle, who also feeds on dead bodies, wheels and circles in a similar manner, at such a height in the air that he frequently looks like a mere speck in the sky. There can be no doubt that it is upon his eye only that he depends. When, even at this vast height, his quick eye catches sight of a grouse in the heather, down drops the bird of prey as if shot, till within some thirty yards of the ground, when, suddenly stopping his downward course, he again hovers stationary over the grouse, till a fair opportunity offers itself for a swoop. I have frequently

seen the eagle do this; and he has sometimes discovered the grouse from a height and distance so great as to make it appear impossible that he should have distinguished so small an object.

It is certain, however, that birds have a tolerably acute sense of smelling, although I know that it has been positively denied that ducks are guided by their scenting powers in taking alarm, and that it is by their quick sense of hearing *only* that they are warned of the approach of danger. But this I utterly deny; for I have constantly seen wild-fowl, when I have been sitting perfectly motionless in an ambuscade, swim quietly towards me without the slightest warning of my vicinity, till coming to that point where my place of concealment was directly to windward of them, they immediately caught the scent, took wing, and flew off in as great alarm as if I had stood up in full view. The same thing has occurred very frequently when I have been in pursuit of geese, the birds invariably taking alarm as soon as they came in a line with me and the wind, and just as much so when I was motionless and not making the slightest noise, as when I was creeping towards them. The same sense of smelling doubtless guides birds, in many cases, to their food, but it is certainly not the sole or even the principal guide of the ravens or the eagles.

When one of the carrion-birds has found a booty, others of the same species who may be wheeling about at a greater distance at once see by his manner of flight and other signs that he has made some discovery, and immediately follow in the same direction, in order that they may come in for their share.

In like manner, when one wild-duck has found out a quantity of corn laid down in any particular place, he soon brings others to the spot, and these again give information to others, until at length large flocks collect to feed on what was originally discovered by a single bird. I do not mean to infer that they can communicate to each other by any bird-language the existence and locality of the prize found; but they all go to the spot attracted by the manner of flight of the first discoverers, which doubtless tells their companions most plainly that they are winging their way directly towards a depôt of food, and not going forth on a vague and uncertain search.

The clamour and noise of crows when they find a prize tell the tale at once to all within hearing, and not to those of their own kind only, but to all ravens or rooks in the neighbourhood.

In the same manner birds communicate alarm and warning, not only to those of their own species,

but also to others. Often has the cry of a crow, who has suddenly while passing over my head discovered my hiding-place, caused a flock of geese or other wild-fowl to take wing instantaneously, as if they themselves had seen me; and many a shot have I lost by the cries of peewits and other birds.

I have often been led to think that, when different kinds of wild-fowl were feeding in a quiet place, the mallards and widgeon have taken no heed to their own security as long as there were either curlews or redshanks feeding near them; being apparently quite satisfied that these vigilant and noisy birds were sufficiently watchful sentinels to warn them on the first approach of danger.

A stag takes warning from the alarm-note of the grouse or plover as quickly as if he had himself seen an enemy, and from the manner of the bird's flight he knows pretty accurately where the danger lies.

In getting up to deer it has more than once happened that I have had either to lie motionless for a long time, or to make a considerable circuit, in order to avoid putting up a cock-grouse, who, eyeing my serpentine movements with suspicion, has been ready to rise with his loud cry of alarm had I approached a yard nearer to him. In fact there is a language of signs and observation carried

on between animals of different kinds, which is as perfectly understood by them as if they could communicate by words.

It is difficult to determine how far we are right in endeavouring utterly to destroy one kind of animal or bird in order to increase another species. Nature, if left to herself, keeps up a fair equilibrium and proportion amongst all her productions; and, without doubt, if the world were left to itself without the interference of mankind, there would never be an undue proportion of any one kind of living creature: the birds of prey would keep down the granivorous birds from increasing till they devoured all the fruits of the earth; and the carnivorous birds and beasts would never entirely extirpate any other species, as their own numbers would be lessened by want of food before this could happen; besides which, we see that, unless artificial means are resorted to, the number of living animals always bears proportion to, and is regulated by the supply of food which offers itself; and, as these supplies fail, there is a natural tendency for the consumers to cease increasing, or to betake themselves to other regions. But when man comes in as an active agent, he gradually extirpates all beasts and birds of prey for the purpose of protecting and causing to increase the weaker but more useful

animals and birds. In this country, for instance, we can no more afford to allow hawks and crows, foxes and weasels, to flourish and increase, however picturesque and beautiful they may be, than we could afford to allow poppies or other useless but ornamental wild-flowers to overrun our corn-fields.

A pair of peregrine falcons take possession of a rock—they will issue out as regularly as the morning appears to search for grouse, partridges, or other birds, which form the food of man. It is the same with other hawks; and we well know that crows destroy more game than all the shooters in the kingdom. It is, therefore, absolutely necessary to keep down the numbers of these marauders as much as possible.

I cannot say that I am at all anxious to see our island entirely clear of what all game-preservers call "vermin." There is more beauty and more to interest one in the flight and habits of a pair of falcons than in a whole pack of grouse; and I regret constantly to see how rare these birds, and eagles, and many others, are daily becoming, under the influence of traps, poison, and guns. The edict which has gone forth against them is far too comprehensive and sweeping, and many perfectly innocent birds go to swell the game-

keeper's list of "vermin." But I have gone fully into this subject before.

One advantage certainly results from birds of prey being killed off: blackbirds, thrushes, and numerous other beautiful little birds, increase in proportion as their enemies are destroyed. In several districts where a few years ago these birds were very rare they are now abundant.

The ring-ousel, too, is one of the birds who has benefited by this destruction of its enemies. There are some other birds, such as the wheat-ear and tit-lark, who are seldom killed by a hawk, but whose nests and young are the constant prey of weasels and other ground-vermin. These also have good reason to thank the trapper. Wood-pigeons, whose eggs were formerly taken by the crows and magpies in great numbers, and whose young served to feed many kinds of hawks, now increase daily, and begin to be a subject of great complaint amongst farmers; and yet the wood-pigeon during a great part of the year feeds on the seeds of many weeds and plants which are useless to mankind. The eggs of birds are in general more or less concealed from their enemies, either by the nest being similar in colour to the surrounding substances, or by its situation; but the eggs of the wood-pigeon are particularly exposed to the attacks of crows, magpies,

etc. Their young, too, are constantly stolen out of the nest by hawks and owls. It is a singular circumstance connected with the "*table arrangements*" of these birds of prey, that they never carry off the young wood-pigeons till they are nearly fledged and ready to fly.

The ptarmigan's chance of escape from birds of prey is much better: they are exactly the colour of the stones in summer, and of the snow in winter, and change their colour as that of their abiding-place is altered. The grouse is as nearly the colour of the brown heather as it is possible for a bird to be; his bright eye and red comb are the only discoverable points about him when he is crouched in it. The blackcock's usual haunt is in lower situations, and he delights in the peat-moss, where the ground is nearly as black as his own plumage. The partridge and quail are exactly similar in colour to the dried grass or stubble, and the quickest eye can seldom see them on the ground when crouched, and not erect or moving about to feed. The pheasant's colour very nearly resembles the dead leaves of the wood and coppice, which are his favourite haunts.

The owl sits securely close to the trunk of a forest tree, her mottled-brown plumage being in colour exactly like the bark of the trunk close to

which she is perched. The peregrine-falcon, with her blue-gray feathers, can scarcely be distinguished from the lichen-covered crag, where she sits for hours together as motionless as the rock itself. The eagle sits upright on some cliff of the same colour as himself, huddled up into a shape which only the experienced eye detects to be that of a bird. The attitudes and figures of the whole tribe of hawks are very striking and characteristic, and as unlike as possible to the stuffed caricatures which one usually meets with, and in which the natural character of the bird is entirely lost. From want of time, and still more from not having frequent opportunities of studying living subjects, bird-stuffers in general make less advancement towards excellence in their avocation than almost any other class of artists, nor has the present leaning towards ornithological pursuits produced much improvement amongst them.

In addition to the protection which similarity of colour affords to animals, they have a natural instinct which leads them to choose such places of concealment as, from the nature of the surrounding objects, are the best fitted to conceal them. The hare, for instance, constantly makes her form amongst gray stones much of her own size and colour; and birds which are much persecuted do

the same. The larger size of red-deer obliges them to depend rather on the inaccessibility of their resting-places than on any attempt at concealment; and the roebuck's safety is in the denseness and roughness of the wood in which it lies.

There is some powerful instinct, also, which assists animals in finding their food; and many go direct from great distances to places where they are sure of finding it. Pigeons find out newly-sown peas and other favourite grains almost immediately after they have been put into the ground; and will frequently fly several miles to a field the very first morning after it is sown. Wild-ducks, also, whose researches can only be made by night, are equally quick in finding places where there is plenty of any favourite food. The small gulls, particularly the black-headed gull, discover the ploughman before he has finished his first furrow, and collect in great flocks to pick up every grub or worm which he turns up. The rapid instinct of birds who feed on carrion has been alluded to already. In fact all birds, whatever their food may be, have an instinctive power of discovering it immediately, and that from such great distances as to baffle all attempt at explanation. In the mountainous districts of Sutherlandshire and others of the northern counties, the

red-deer invariably knows the exact time when the shepherd's patch of corn and potatoes is fit for his food, and will sometimes come down in such numbers as to eat up and destroy the entire crop in a single night; or if the cultivated ground be extensive, they will repeat their visit in spite of all attempts to drive them away; and the cleverness they display in taking advantage of every unguarded moment is quite astonishing. In Sutherlandshire little loss accrues to the tenant from this, as a fair allowance for such damage is always readily granted. It is a curious sight to see these animals depending entirely on their own resources and cunning in avoiding danger, and, in spite of their natural timidity, coming fearlessly down to the very door of a cottage to feed on their favourite food, and frequently from very considerable distances; and even after the oats are cut and piled up in sheaves, I have seen red-deer with astonishing boldness manage to appropriate to themselves no inconsiderable share of the ripe corn.

All the deer tribe soon find out when danger ceases. In a domesticated state no animal becomes more fearless and bold than a stag; and in proportion as they become so they are dangerous to strangers, whom they attack with great fierceness.

They have, however, discrimination enough to assault women more frequently than men, being evidently aware that they are the more helpless of the two, and less able to resist. Even a roebuck, when tamed, will do this; and their activity and strength render them no contemptible antagonists.

I remember a roebuck, belonging to a clergyman of the Established Church in Scotland, which one day attacked and hurt a woman who was a zealous supporter of the Free Church. The good lady uttered the most bitter maledictions against the clerical owner of the roe, vowing that he kept his Satanic Majesty "in the shape of a horned beast," for the sole purpose of attacking and destroying Free Church people.

A roe, though so beautiful an animal, is a most unsatisfactory pet; as they invariably either become dangerous as they become tame, or else take to the woods and are killed, their instinctive knowledge of danger having apparently deserted them.

SCOTCH STREAMS AND LAKES.

CHAPTER XXXII.

Rivers, Streams, and Lakes in Scotland—The Tweed—The Lakes and Streams of Argyleshire—Loch Awe—A Contest with a Salmo ferox—Inverness-shire, Ross-shire, and Sutherland—Pike not an *injurious* destroyer of Trout—Char—The River Shin—Pertinacity of Salmon in ascending Streams—The Beauly—The Findhorn—The Spey—The Dee—Decrease in the number of Salmon; its causes and its cure—Extent of the trade of Fly-making.

MANY and varied are the streams and lakes of Scotland, and scarcely any two of them contain trout of exactly similar appearance. Although of the same species, and alike in all the essential parts of their anatomy, etc., in outward appearance, shape, and colour, trout vary more than any other fish. As I have before observed, these fish have the power of either voluntarily or involuntarily taking, to a remarkable degree, the colour of the water in which they live. In the same way do they derive their brown and yellow hue from the

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stones on which they are accustomed to lie. Few Highland streams contain very large trout: the feeding is not abundant enough, the cold waters not being sufficiently productive of animalculæ and small insects. Fish are as dependent on the nature of the soil through which a stream runs as oxen are on the richness of the meadows on which they pasture. The reason is obvious: a river which runs through a fertile country always abounds in flies, worms, snails, etc., on which its inhabitants feed; whilst a mountain stream, which flows rapidly through a barren and rocky country has not the same supply.

I will not pretend to give a descriptive list of all the rivers, streams, and lakes in Scotland, where the angler may find employment for rod and line: they are too numerous for me to do so; nor is my knowledge of them sufficiently complete.

There are few districts, from Ayrshire to Caithness, where trout and salmon are not to be found in tolerable abundance. Many streams run into the Solway Firth which are plentifully supplied with good trout, fed on the insect population of the fertile fields of Ayrshire, Kirkcudbright, etc. Many fine lakes, abounding in trout, char, and pike, are also to be found in that district. But mines, and other similar works, are already beginning to

fill that part of the country with a population peculiarly destructive to fish and game.

The Tweed and its tributaries are known to all as the angler's classic ground, and have been so often described by abler pens than mine that I will say nothing about them.

Loch Leven trout are famous throughout Scotland.

Then come the lakes and streams of Argyleshire, beautifully situated in a wild and rugged country, but overrun of late years by cockney and summer tourists. Loch Awe will, however, always maintain its high repute for its large lake trout, which rival the pike in size and voracity, but are stronger, and far more wary and difficult to catch. A "Salmo ferox" of fifteen or twenty pounds weight is no mean adversary. His first rush, when he finds himself firmly hooked, is nearly strong enough to tow the fishing-coble after him. And then comes the tug of war. The monster, held only by a slight line and tapering rod, is one moment deep down boring his head to the bottom of the lake, with every yard of the line run out, and the rod bent into the water; the next he takes a new freak, and goes off near the surface like a steamboat, and before you can wind in he is right under your boat and close to the bottom of it, your line being you know

not where. Again the reel is whirring round so rapidly that you feel your line must break in spite of all your fancied skill. But no—he stops suddenly, and again seems inclined to wind your line round and round the boat; or, by Jove! to upset you, if he can, by running against its keel. If there is a projecting nail, or a notch in the wood, he manages to get the line fixed in it. After you have cleared your tackle from this danger, off he darts again. Your Highland boatman swears in Gaelic; you perhaps follow his example in English —at least, to a certainty you blame him for rowing too fast or too slow, and begin to think that you would give a guinea to be honourably rid of the fish without discredit to your skill as an angler. At last your enemy appears exhausted—you have been long exhausted yourself—and floats quietly near the surface. But, at the critical moment of placing the gaff in a position to secure him, he flaps his tail, and darts off again as strong as ever, taking good care to go right under the boat again. At last, however, patience and good tackle and skill begin to tell; and, after two or three more feeble efforts to escape, your noble-looking fellow of a trout is safely lodged in the bottom of the landing-net.

Inverness-shire and the west of Ross-shire and

Sutherland are intersected by numerous excellent salmon rivers and beautiful lakes, full to overflowing of trout and pike. It is a fallacy to suppose that pike are at all detrimental to the sport of the fly-fisher—at least in a Highland lake, where there is depth and space enough for both trout and pike to live and flourish in. Of course pike kill thousands and tens of thousands of small trout. But the principal thing to be regretted in almost all Highland lakes is that there are far too many trout in them, and that the fly-fisher may work for a month without killing a trout of two pounds weight. Pike keep down this overstock, and yet still leave plenty of trout, which are of a better size and quality than where they are not thinned. I have invariably found that this is the case, and that I could kill a greater *weight* of trout in a loch where there are pike than where they had not these their natural enemies to keep down the undue increase in their numbers. Pike, too, are by no means exclusively piscivorous; they are as omnivorous as a pig or an alderman. A great part of the food of a pike consists of frogs, leeches, weeds, etc. etc. Young wild-ducks, water-hens, coots, and even young rats, do not come amiss to him. Like a shark, when hungry, the pike swallows anything and everything which comes within reach of his murderous jaws.

If the fact could be ascertained, I would back a "Salmo ferox" of ten pounds weight to kill more trout in a week than a pike of the same size would do in a month. I never killed a tolerably large trout without finding within him the remains of other trout; sometimes, too, of a size that must have cost him some trouble to swallow. In fact, I am strongly of opinion that pike deserve encouragement in all large Highland lakes where the trout are numerous and small. There is also no doubt that trout follow up the *lex talionis*, and feed on the young pike as freely as pike feed on young trout.

There are numberless fine lakes in the interior of the northern counties, situated in wild and sequestered spots remote from roads and tracks, the waters of which are seldom or never troubled by the line of the angler. During my search for the breeding-places of the osprey and other rare birds in the north of Sutherland, I have come upon lakes situated in those rugged wildernesses, and frequently high upon the mountains, where I am confident no human being ever practised the "gentle craft." The only enemies that the trout have in these lonely lochs are the otters who live on their banks, or the osprey who builds her nest on some rocky islet, safely encircled by the cold depths of the surrounding waters.

There is also in many of these lakes plenty of char, a fish of mysterious habits, never or seldom taking the fly or any other bait, but at a certain season (about the middle of October, as far as my experience goes) migrating in great shoals from the deepest recesses of the lake, where they spend the rest of the year, to the shallows near the shore. During this short migration they are caught in nets, and frequently in great numbers.

On the east of Sutherlandshire there are several excellent salmon rivers: amongst the best, if not quite the best, of these is the "Shin," which flows out of an extensive lake of the same name, which is full of most excellent trout. In some parts of this county the propensity of salmon to ascend streams is most strikingly exemplified; nothing can exceed the determination with which they work their way from river to lake, from lake to burn, and so gradually ascending every running stream until at last they reach rivulets so small and shallow that you wonder how two salmon can pass each other in them. Taking advantage of every flood which swells the burns, they work themselves up shallows and narrow places where apparently there is scarcely sufficient water for the smallest trout to swim. When they have fulfilled their spawning duties they drop back during the winter floods to the larger

streams and thence to the sea, where they become reinvigorated and increase in size with a rapidity which would be incredible had it not been fully ascertained by frequent and specific experiment.

On the east coast of Ross-shire, between Sutherland and Inverness-shire, there are few streams of any size or value.

The Beauly is a noble stream, as well for the angler as for the lover of natural beauty, being surrounded with most magnificent scenery.

But above all rivers, "*ante omnes*," the Findhorn holds with me the highest place, not only for the abundance of its fish, but for the varied country and beautiful scenery through which it passes, from the dreary brown and gray heights of the Monaghleahd mountains, at its source, to the flat and fertile plains of Morayshire, where it empties itself into the salt waters; and, beyond a doubt, the beauty of the scenery and banks of the Findhorn for several miles is not to be equalled in Scotland. Most interesting, too, and varied, are the wild animals and birds which frequent its rocks and banks, from the stag and eagle, which add to the wild grandeur of its source, to the wild-swan and gray goose, which feed at its junction with the bay.

I do not know that the Findhorn can be called

a first-rate angling river; for, although frequently almost full of fish, it is so subject to floods and sudden changes that the fish in it do not generally rise well, being constantly kept on the move.

Although these violent and often most unexpected risings of the river add much to its interest in the eyes of the artist or spectator, they militate sadly against the success of the angler, who has frequently to gather up his tackle as he best can, and run for his life; or, after having made up his mind to a week's good fishing, finds the river either of a deep black colour, or of the hue and almost of the consistence of pea-soup, overflowing bank and brae, owing to some sudden rain-storm in the distant mountains of the Monaghleahd.

The Spey is another glorious river—a finer river for salmon than even the Findhorn: indeed the rent paid for the salmon-fishing at the mouth of this river proves it to be the best supplied water in Scotland. Everything in this matter-of-fact age brings its real and marketable value; and, from the amount of rent paid, the number of fish which inhabit each river may be very nearly ascertained by a simple arithmetical process, as all fishing-rents are proportioned correctly and carefully to the number and value of salmon which can be caught. The Spey is a fine wide stream, with a great volume

of water; and although, like all Highland rivers, subject to floods, is not liable to such sudden and dangerous risings as its neighbour the Findhorn.

The Dee, and many other rivers and streams, all gladdening to the eye of the fly-fisher, pour their waters into the German Ocean: with none of these, however, have I a sufficient personal acquaintance to enable me to describe their merits or demerits.

It is a matter quite beyond doubt that salmon are decreasing every year in most of the Scottish rivers. With short-sighted cupidity these valuable fish are hunted down, trapped, and caught in every possible manner; and in consequence of this reckless destruction the proprietors of some salmon rivers will, before many years have elapsed, lose the high rents which they now obtain from sportsmen and speculators. Prolific as they are, fish, like all other animals, must of necessity decrease, unless allowed fair play and time to breed.

It is not the angler who injuriously thins their number. The salmon is too capricious in rising at the fly to make this possible. Nor, indeed, do I think that any extent of fair river-fishing can exterminate them. It is the system of stake-net and bag-net fishing which requires to be better regulated, and placed under more stringent local laws. As the fishing is now carried on, the salmon are almost

precluded from reaching their breeding-grounds. The mouth of every river is flanked and hemmed in by stake-nets and similar obstructions, against which the poor salmon have not the least chance. Coasting along the shore in search of fresh waters, they find a fence which they cannot get through, and which leads them directly into an ingenious but most iniquitous puzzle of a trap. In fact, if the object of proprietors and renters of rivers was to exterminate salmon, they could not devise better means to do so than those now practised. On the other hand, the rents are so high—and they still go on increasing—that the lessees are obliged of necessity to use every means in their power to pay all their heavy expenses and to obtain even a moderate profit.

The individual who hires a salmon river as a matter of trade and speculation cannot be expected to be influenced by any other motive than wishing to make the best of his bargain. His outgoings are great; he pays a large rent for the privilege of dragging a net through the water; he pays a rent for the right of putting up stake-nets, bag-nets, cruives, etc., all of which are exposed to injury and destruction by flood and storm; he pays numerous servants and watchers, and has also the great expense of making and renewing his boats, nets, and

other valuable tackles—and yet he is the person usually blamed as the destroyer of the salmon, whereas, in fact, he is actually compelled, in self-defence, to take every fish he can catch, in every possible manner, as the only chance he has of meeting all these heavy expenses. At the same time it must be remembered that no one single proprietor can do anything towards putting down this ruinous system unless the neighbouring owners on the same line of coast co-operate with him. A pause for a few years in this wholesale destruction would bring the salmon back to something like their former numbers, and enable proprietors of rivers to ask and obtain the same rents as they now do, from English and other sportsmen who come northwards for angling. At present, fly-fishing, in many rivers which were formerly abundantly supplied, is not worth the trouble—a mere *umbra nominis*—excepting during the run of grilse; and this can only be remedied by a system of unanimous and general preservation of the fish.

There is no necessity for restricting the sport of the fly-fisher. Salmon will never be injured to any great extent by this mode of taking them; and were the net-fishing better regulated, and diminished, higher rents would not be grudged by the sportsman.

Excepting amongst anglers, the extent of the trade of fly-making is little known. The number of hands employed, men, women, and even children, whose small fingers are the best adapted for imitating the delicate wings of the midge or ant, and the variety of materials used, would astonish the uninitiated. If any person will examine the wings and body of a single Irish salmon-fly, he will perceive how many substances are used, and how many birds from every quarter of the globe are laid under contribution to form this tiny but powerfully attractive bait, which, were it less carefully and skilfully constructed, would never entice the wary salmon out of his resting-place under some stone or rock, where, like a gourmand in the snug corner of his club-room, he patiently but anxiously awaits the arrival of some delicate morsel.

DOGS.

CHAPTER XXXIII.

Learned Dog and Show-woman—Education of Sporting Dogs—Hereditary Instinct of Dogs—Their thievish propensities descend to their offspring—Bad-tempered Dogs—Breaking of Dogs—Their jealousies—Their Hunting alliances—Attachment of a Dog to his Master—Dog-eating reprobated—Bloodhounds—Skye Terriers—Dogs combining against a common enemy—Old Dogs—Singular instance of sagacity in one.

ALTHOUGH I am perfectly content with witnessing the sagacity and instinct displayed by my own dogs in their every-day employments and proceedings, and am, generally speaking, unwilling to countenance the trickery of what are called "learned dogs," yet the other day, to please my children, I allowed a woman, who sent up a most dirty-faced card, announcing herself as the possessor of "THE MOST ASTONISHING LEARNED DOG EVER KNOWN," to exhibit the animal in our front hall.

The woman herself was a small sharp-looking personage, with the sodden and hard expression of

feature peculiar to that class who travel in caravans, and exhibit dwarfs, giants, and suchlike vamped-up wonders. The dog was a well-fed, comfortable-looking kind of bull-terrier, slightly rough about the muzzle; but, notwithstanding his quiet and sedate look, there was a certain expression of low cunning and blackguardism about his face which would have stamped him anywhere as the associate of vile and dissolute company; and, although he wagged his stumpy tail, and pretended to look amiable at his equally cunning-looking mistress, his attempts at amiability seemed to be rather the effects of kicks and blows than of genuine attachment. He received her caresses, too, with a kind of uncertain appearance of pleasure, as if he did not much value them, but of the two rather preferred them to her kicks.

On entering the hall he cast a kind of hasty look round him, much as you would expect a rogue to do on entering a shop from which he intended to purloin something; however, on the woman producing certain dirty cards, with their corners all worn round by constant use, and marked with numbers, letters, etc., the dog prepared himself for action, with a preparatory lick at his lips and a suspicious look at his mistress. The tricks consisted of the usual routine of adding up figures,

spelling short words, and finding the first letter of any town named by one of the company. This last trick was very cleverly done, and puzzled us very much, as we—*i.e.* the grown-up part of his audience —were most intently watching, not him, but his mistress, in order to discover what signs she made to guide him in his choice of the cards; but we could not perceive that she moved hand or foot, or made any signal whatever. Indeed, the dog seemed to pay little regard to her, but to receive his orders direct from any one who gave them. In fact, his teaching must have been perfect, and his intellect wonderful.

Now, I daresay I shall be laughed at for introducing an anecdote of a *learned* dog, and told that it was "all trick." No doubt it was "all trick;" but it was a *very* clever one, and showed how capable of education dogs are—far more so than we imagine. For here was a dog performing tricks so cleverly that not one out of four or five persons who were most attentively watching him could find out how he was assisted by his mistress. The dog, too, as the woman said, was by no means of the kind easiest to teach. She told us that a poodle or spaniel would be far quicker in learning than a terrier: but I strongly suspect that neither of these kinds would have courage sufficient to

stand the corrections necessary to complete their education, without becoming too shy to perform their part well.

The woman, though clever enough in her way and well spoken, was a melancholy specimen of a peculiar class. Sold by her parents, if she ever had any decided relatives of that kind, at an early age to the leader of some itinerant party of rope-dancers, or walkers on stilts—when she had mastered these respectable sciences she acted in the capacity of rope-dancer, or fifth-rate figurante, in some fifth-rate theatre. Disabled by an accident—a broken ankle—from following these employments, she was reduced at last to travelling to country fairs and markets in a painted caravan, the ill-used companion of some whiskered ruffian, arrayed in a fur cap, red plush waistcoat, corduroy breeches, white stockings, and ankle boots—the invariable dress of all masters of show-caravans. And now the poor woman, ruined in health and mind by hardship and dissipation, earns a precarious living by wandering through the country, and exhibiting her learned dogs, and her unlearned children, who, by dint of beating and starving, had been initiated into the mysteries of their respective callings. She assured me, with great professional energy, that one of my dogs, a large poodle, would make a first-rate

pupil, and I saw her more than once looking at him with a longing eye.

Dogs, indeed, will learn almost anything; but, in teaching sporting dogs, much attention should be paid to the qualities and education of their forefathers. I am no advocate at all for crossing pointers with foxhounds, etc., to increase the strength and endurance of the animal; all dogs so bred will invariably give great trouble in their education from an hereditary inclination to act the hound instead of the pointer. There is quite variety enough in the present breed of pointers to improve your kennel, if you want any addition of bone, speed, or courage.

I have seen a young pointer, who was only just able to run out alone, point, and indeed back, as steadily, and with as much certainty, as an old dog; but this undoubtedly would not be the case had there been any cross whatsoever in his breeding. The late Mr. Andrew Knight, than whom a more practical and acute naturalist did not exist, paid much attention to what he termed "the *hereditary instinct*" of dogs. His woodcock spaniels were chosen from puppies whose ancestors had been most famous for woodcock-hunting; and his rabbit dogs from those whose parents had shown most skill in rabbit-hunting. Some years ago I spent many a

pleasant half-hour in listening to his amusing and enthusiastic descriptions of the "hereditary instincts" of his favourite dogs.

There is certainly no class of dog in which this faculty is more decidedly shown than in retrievers. Although a retriever is frequently of a cross-breed, yet if his ancestors for one or two generations back have been well educated, and have had much practice in retrieving, he invariably requires little if any teaching, and appears to understand the whole of his business instinctively. I am convinced that I have seen this inherited skill exemplified in one of my retrievers, a curious kind of rough animal, who resembles a Russian poodle more than any other dog. I bought him of a man who lived by poaching, and other similar arts, when the dog was six months old, and before he could have acquired any very bad habits. The dog invariably showed, and still shows, the most determined propensity to steal meat and other eatables. Neither flogging nor good feeding prevents him, and he carries on his operations in so cunning and systematic a manner, that I dread taking him to any friend's house without instantly fastening him up. As long as any person is looking at him, he remains in a state of apparently the most innocent quietude; but the moment no eye is on him, *abiit, evasit;* and to a

certainty some joint of meat has vanished with him, but whither, or how, no one knows.

Sometimes he manages not even to be suspected. On one occasion five pounds of beefsteak suddenly disappears. Every dog about the place is suspected excepting Gripp, and he, "poor brute!" the cook affirms, "cannot be the thief; for he never moved from the fire, where he was drying himself, and he is the quietest dog in the world:" so says my friend's cook, at the very time that the poor good dog is suffering the most painful indigestion from having swallowed so much raw meat in addition to his regular meals, and the extra scraps that he has inveigled out of the cook by his unsophisticated innocence. The next day half a haunch of roebuck is gone: but Gripp still keeps his place in the good graces of everybody. "It couldn't be Gripp," is the universal cry; "he wouldn't do such a thing!" At last Mr. Gripp is caught in the very act of swallowing the remains of a pound of butter, struggling in vain to bolt it at once; but the slippery lump will not go down. Then comes a long train of circumstantial evidence, and a dozen recent robberies are brought home to him.

Now the beast was always well fed, and was only impelled to steal by an hereditary irresistible impulse, handed down to him from his grandfather

and father, who both belonged to a race of poachers in a country town, and had been taught to find their own living. Beyond a question, Gripp inherited his system of morality from his respectable ancestors, to whom also he bore the strongest personal resemblance.

By the same rule, never keep the puppies of a notorious sheep-killing dog, nor of a bad-tempered dog: they are sure to have the same inclinations and tempers as their parents; and you will find it most difficult, if not impossible, to cure them of these faults. The breeders and teachers of dogs would much facilitate their own labours did they pay more attention to the dispositions and habits of the parents of the puppies whom they take in hand.

Dogs have quite as different dispositions and tempers as their masters. For my own part, I would never take the trouble to bring up and educate puppies who showed either a sulky or a very timid disposition. Neither of these faults can be so completely got rid of as to make them satisfactory assistants or companions. I say *companions*, for I have so much regard for these animals, that I like them as companions, and care little for dogs who have only been taught to obey and hunt for the gamekeeper. I am very far from intending to

disparage a kennel of well-broken pointers or setters, and I delight to see them do their work correctly, and with all their beautiful display of instinct, although under the command of the gamekeeper only, and scarcely knowing their own master's voice or whistle. Three or four brace of perfectly-broken dogs pointing and backing without fault is a sight that must interest and amuse every person, whether sportsman or not: yet I far prefer hunting my own brace of dogs, and seeing them look to myself wholly for direction and approbation instead of to my servant. Every dog, with an average share of good sense and good temper, is so eager for his master's approbation, that he will exert himself to the utmost to obtain it; and if this fact were constantly kept in mind, the breaker-in of dogs need seldom have recourse to flogging. Indeed, I have no hesitation in saying that five dogs out of six may be completely broken in without a blow, and that, generally speaking, *quiet, patient* reasoning with a dog is all that is requisite to secure his obedience and attention. I know that this is quite contrary to the opinion of most dog-breakers, who think that nothing can be done without a heavy whip and loud rating. But one thing at least is certain, that when you *do* flog a dog, you should do it soundly, and only when you catch him

"red hand"—*in flagrante delicto*. He cannot then mistake *why* you flog him. Intelligent as this animal is, still it cannot be expected that he should know why he is flogged, if any time has elapsed since the fault was committed.

Dogs have also a great deal of jealousy in their dispositions; and even *this* may be made to assist in their education, as it makes them strive to outdo each other. Every clever dog is especially unwilling that any of his companions should possess a greater share of his master's favour than himself. One of my dogs could not be induced to hunt in company with another, of whose advances in my good graces he was peculiarly jealous. There was no other ground of quarrel between them. When Rover saw that a certain young dog was to accompany me, he invariably refused to go out; and, although at other times one of the most eager dogs for sport that I ever possessed, nothing would induce him to go out with his young rival. He also showed his jealousy by flying at him and biting him on every possible occasion where he could do so unobserved. At last, however, when the young dog had grown older, and discovered that his own strength was superior to that of his tyrant, he flew upon poor Rover, and amply revenged all the ill-treatment which he had received at his hands. From that

day he was constantly on the look-out to renew his attacks; but having soon established his superiority, he thenceforth contented himself with striking down the old dog, and, after standing over him for a minute or two, with teeth bared ready for action, he suffered him to sneak quietly away, for Rover was too old a soldier to resist when he found himself overmatched. At last the poor old fellow got so bullied by this dog, and by two or three others whom I am afraid he had tyrannised over when they were puppies, that he never left the front-door steps, or went round the corner of the house, before he had well reconnoitred the ground, and was sure that none of his enemies were near him; and yet, in his battles with vermin or with strange dogs, he was one of the most courageous animals I ever had.

Although dogs form such strong attachments to man, they seldom appear to feel any great degree of friendship for each other. Occasionally, however, a couple of dogs will enter into a kind of compact to assist each other in hunting. For instance, I have known an old terrior who formed an alliance of this sort with a greyhound, and they used constantly to go out poaching together. The terrier would hunt the bushes, whilst the greyhound stationed herself quietly outside, ready to spring on

any rabbit or hare that was started; and she always took the side of the bush opposite to that by which the terrier had entered it. On losing his companion, the terrier, who was becoming old in years and cunning, entered into confederacy with a younger terrier. In all their hunting excursions the old dog laid himself quietly down at some likely-looking meuse or run, and, sending his younger companion to hunt the bushes, he waited patiently and silently for any rabbit that might come in his way. Their proceedings showed a degree of instinct which almost amounted to reason.

So many stories have been told of the strong attachment of dogs to their masters, that to enlarge upon the subject would be superfluous. I must, however, relate one anecdote which was told me lately. A minister of a parish in this neighbourhood having died, his favourite dog followed his body to the grave, and no inducement could persuade the faithful animal to leave the place. Night and day, bad weather and good, did the dog remain stretched on the grave. The people of the neighbourhood, finding all their endeavours to entice him away fruitless, and respecting his fidelity, fed and protected him. This continued for several weeks—indeed until some time after the manse was tenanted by a new minister, whose wife, from some

wretched feeling of superstition, caused the dog to be killed. May the mourners over her own grave be better treated! The source from which I received this anecdote leaves no doubt upon my mind as to its truth. I must own, indeed, that I am greatly inclined to believe all stories which exemplify the reasoning powers or the fidelity of dogs. However marvellous they may be, my own experience leads me to think that, although they may not be *probable*, at least they are *possible*.

The dog is peculiarly the friend and companion of man. In every country this is the case, and it has been so in every age. There is one use, however, to which they are put, the propriety of which I cannot admit, namely, that of being eaten. Being decidedly a carnivorous animal, the dog can never have been intended for our food; and those nations who eat dog's flesh, as the Chinese and certain of the American Indian tribes, appear to me to be guilty of a sort of cannibalism almost as bad as if they ate each other. Yet we read accounts of their being occasionally eaten in those countries by our own countrymen, and actually relished. Hunger, we all know, is a good sauce; and perhaps a young puppy may not be bad, though in all probability those travellers would have found an infant still more relishing. I confess that I

have as little inclination to try the one experiment as the other.

There are two kinds of dogs which have been bred in much greater numbers since the rage for Highland shooting and deer-forests has become so strong—I mean the Highland deerhound and the old bloodhound. The former is immortalised in so many of Landseer's pictures that, although deer-stalking may be given up, the dog will for centuries be remembered; but the bloodhound is not so generally used for this sport as it might be. If greater trouble was taken in training bloodhounds to the tracking of wounded deer, this species of dog would be invaluable to the sportsman. But to effect this, it is absolutely necessary that they should be taught to track quietly whilst led. Almost every bloodhound pulls and strains on the collar, panting and struggling to get forward on the scent, until at last he becomes as blown and distressed as if he had run full speed all the time: and, indeed, more so. Besides which, as perfect silence is a *sine quâ non* in following up a wounded stag, your object will very probably be defeated. Train the bloodhound to keep pace with his leader, and to track silently and slowly, "*pari passu*," whatever scent he is put on, and he is then invaluable. Many instances of the extraordinary powers of

scent displayed by this dog in following wounded animals have come under my observation, some of which would appear incredible.

A bloodhound is easily taught to follow the track of any stranger whose path he may come across on the mountain or elsewhere. This faculty alone makes this dog worthy of far more pains than are ever bestowed on him. Keepers seem to think that because he is called a bloodhound, and because bloodhounds, in former days, were used for tracking robbers and fugitives, that he requires no teaching to enable him to follow any track which he is set upon; and masters generally leave these things to their keepers, trusting implicitly to their verdict as to the capabilities of the dog. But this opinion is altogether erroneous. The bloodhound, to perform his duty perfectly, requires education, like every other dog. With a due degree of care, and frequent practice when young, a well-bred bloodhound will soon learn to track a man with unerring correctness.

An extraordinary instance of this faculty in a young bloodhound occurred some fifteen or sixteen years back in Worcestershire, for the truth of which I can vouch. At the house of a lady in the country, where a young full-grown bloodhound was kept, the harness-room was robbed during the night.

Some of the grooms, who found out the robbery at an early hour in the morning, having heard that bloodhounds would hunt men, took the dog out, and put him on the footsteps, which at that hour were plainly visible on the dewy grass. The dog immediately took up the scent, the servants followed, and, after a run of twelve miles, came to a cottage, where both the thieves and the harness were discovered. It appeared that the thieves had waded through a tolerably broad but shallow stream: the dog scarcely came to a check here, the scent appearing to remain in the morning mists, which were still hanging on the surface of the water. He went straight across, and at once took up the scent on the opposite side of the river.

One of the most singular uses to which dogs are put is truffle-hunting. I well remember, in my younger days, a curious old fellow in Sussex who gained his living, *ostensibly*, by this pursuit. Accompanied by four or five quaint-looking currish poodles of a small size, he used to follow his trade, and generally hunted out a considerable number of these mysterious but excellent roots.

The Skye terrier, though so much prized by our English visitors, has by no means the determined blind courage of the English bull-terrier. Nevertheless there is much quiet intelligence and charac-

ter in this dog, and if well entered at vermin when young they are useful enough. Like all terriers, though eager hunters, they do not appear to hunt so much to *find* as to *kill;* and when in company with spaniels they are apt to leave the latter to search for the game, while they wait about the runs and outside the bushes, ready to spring upon whatever is started by the spaniels. I have always found this to be the case with my own Skye terriers, and have observed it in others. These dogs generally take the water freely and well, though I have had smooth bull-terriers better swimmers and divers than any rough dog I ever possessed.

Though dogs often disagree, and are jealous of each other at home, they generally make common cause against a stranger. Two of my dogs, who were such enemies and fought so constantly that I could not keep them in the same kennel, seemed to have compared notes, and to have found out that they had both of them been bullied by a large, powerful watch-dog belonging to a farmer in the neighbourhood. They suspended their own hostilities, and formed an alliance, and then they together assaulted the common enemy; and so well assisted each other that, although he was far stronger than both my dogs put together, he was so fairly beaten and bullied that he never

again annoyed them or me by rushing out upon them as we passed by the place, as he had always been in the habit of doing before he received his drubbing.

Unluckily, dogs, like men, will grow old and deaf, and become a burthen to themselves and others. Life is then no longer a matter of enjoyment to them; and the most merciful thing to do is to have the poor animal shot. But we do not always practice what we preach; and, although I am quite convinced that having a dog killed when old, infirm, and rheumatic is doing him a kindness, I could never bring myself to order the execution of any of my old canine friends.

Hanging a dog is barbarous; but when shot he can feel but little pain, and he will be in the paradise — the "happy hunting-grounds" — of dogs before he hears the report of the gun which sends him there, and he can have no anticipation, or only for a moment, of what is about to be done to him. I must admit, however, that I was once told, and by a credible person, an anecdote which went to impugn this theory. His dog having been convicted of sheep-killing, he told a man to shoot him the following morning. The dog was lying in the room at the time, and apparently listening to the conversation. Whether he understood it or not

I will not pretend to determine; but the very first time the door was open he bolted out, and never again came within reach of his old master. This seems rather a stretch of canine intelligence, but it was told me as a true story; and I am convinced that the relater, who was the master of the dog, believed it himself.

But I must close my chapter on this subject, or I shall become insufferably prolix.

WINTER SKETCHES.

CHAPTER XXXIV.

Grouse; Hardiness of—Difference of Climate in Morayshire—Migratory habits of Partridges—Grubs, etc., destroyed by Pheasants—Ptarmigan—Ptarmigan-shooting during Winter—An Expedition to the Mountains—Early start—Tracks of Otters—Otter-hunting—Stags—Herons—Golden-eyes—Wild-cat—Mallards—Tracks of Deer—Gray Crows—Eagle—Shepherd's hut—Braxy Mutton—Ascent of the Mountain—Ptarmigan—Change in the weather—Dangerous situation—Violent Snowstorm—Return home—Wild-duck shooting—Flapper-shooting.

GROUSE, although frequenting high and exposed situations, are perhaps less affected by a moderate fall of snow than partridges or any other game. A hardy and a mountain-bred bird, the grouse cares little for cold; and although the hillside may be covered with snow, by digging and burrowing he soon arrives at the heather, and thus obtains both food and shelter; and in weather which makes the partridge cower and mope most disconsolately under any shelter it can find, the grouse-cock, with his well-clothed legs and feet, struts and crows on

the cold snow apparently in full enjoyment of life and health. In this county of Moray the difference of climate between the hillside and the flat lands near the salt-water bays is very great—greater, indeed, than would be supposed. Long after every trace of snow has disappeared from the fields near the Bay of Findhorn, the country four or five miles to the southward, inland, is still deeply covered with it. The large fir plantations certainly create a mildness in the air which melts the snow in their immediate vicinity; but beyond the extent of their influence the ground becomes colder and colder, and the snow deeper and deeper, every mile that we recede from the sea.

In October the summits of the higher mountains are generally clothed in snow, and frequently hills of a very moderate height are partially covered with it. As soon as this occurs, a great many partridges, black-game, and wild-fowl of all descriptions migrate to their winter quarters.

Partridges are far more migratory in their habits than is generally supposed. Every winter several large unbroken coveys betake themselves on the first approach of storm and cold to the quiet and warm fields in the lower part of the country; and, when spring returns, pairs of partridges appear here and there, on every little patch of cultivated ground

on the moors. These birds being almost entirely granivorous, always select cultivated districts—and indeed they only thrive where corn grows; but their actual consumption of corn is not great, for a partridge is a moderate eater, and in part feeds on the seeds of grasses and many weeds as well as on corn. I am confident, as I have before stated, that most, if not all, granivorous birds amply repay the farmer for their food by the quantity of weeds they destroy during a great part of the year. The pheasant is in a great degree an insectivorous bird, and feeds more on grubs, caterpillars, and other insects, than on corn; thereby relieving the farmer from a whole host of enemies whom he could in no other way get rid of.

During storms the ptarmigan burrow deep under the snow in search of shelter and food. These birds seldom descend far down the mountains, even in the severest weather. When only the summits are covered, they descend to the edge of the snow; but when the whole mountain is white, they do not leave it for the lower hills, but find what shelter they can by burrowing. Ptarmigan-shooting during winter is a most laborious sport, and is frequently attended with no small risk, owing to the snow concealing the numerous clefts and dangerous places which intersect the heights where these

birds abound. The days, too, being short, and the changes of weather frequent, the ptarmigan-shooter must work carefully and quickly.

Some few years back, when living in the north of Scotland, I was anxious to get a few ptarmigan in their beautiful winter plumage, which is as pure a white as the snow itself. It was late in the season, and the ground was covered with snow; but as there had been a few days' frost the walking was by no means bad; so I determined to start in spite of the cold and snow, and the grumblings of old Donald, who had but little inclination for the pursuit.

Our plan was to reach a shepherd's house, situated about ten or twelve miles — that is to say, about four hours' easy walking — up the course of the river; there we were to sleep, and to attack the ptarmigan on the following day— the mountain where I expected to find them being situated near the shepherd's house. At the first break of day Donald and I left the house, accompanied by one quiet dog, whose personal inclinations tended rather to otter-hunting and such like pursuits than to grouse-shooting; but his nose was so good and his intelligence so great that in cover-shooting and rough work he was invaluable. Pointers would have been useless for ptarmigan in

the then state of the ground; and I also thought it not unlikely that we might fall in with the track of an otter or wild-cat during our walk up the river side.

As soon as we emerged from the woods a beautiful sight opened to us; the morning sun, although not yet visible, tinged the mountain tops to the west, their snow-covered summits shining with all the varied colours of the rainbow: soon, however, the bright sun of a frosty winter's day rose behind us, making the old birch-trees which grew on the slopes above the river throw out their dark shadows on the snow. Here and there a roe-buck or two "*stotted*" (to use Donald's favourite expression) over the turf wall into the shelter of the fir-woods, out of which we had just come; the grouse-cocks were crowing on the juniper-covered hillocks, which showed their lively green above the surrounding snow; and the blackcocks launched themselves off the birch-trees, where they seemed to have been awaiting the first rays of the morning sun. Everything around us was full of beauty; and dreary as a mountainous country is when covered with snow, still it is magnificent, varied too as it now was by wood and water and numerous living creatures, all appearing to be in as full enjoyment of life as if it had been a genial

morning in May instead of a most orthodox Christmas-like day. The gray crows were just going forth in pairs from the woods, calling to each other with loud ringing cries, and all bending their way straight to one point, where, as we afterwards found, two drowned sheep had been cast ashore in a bend of the river.

We walked on, and soon came across the tracks of two or three otters, where they had been going in and out of the water on their way up stream, after fishing in the deep pools where the two waters met near the house. These pools are favourite resting-places for salmon and sea-trout, and therefore are sure to be frequented by the otters.

Opposite to a strip of birch-trees one of the largest otters seemed to have left the river and to have made for a well-known cairn of stones, where I had before found both marten-cat and otter. Half way up the brae he had entered a kind of cleft or hole, made by a small stream of water, which at this spot worked itself out of the depth of the earth. "He'll no stop in this," said Donald; "there's a vent twenty yards above, and I ken weel that he'll no stop till he is in the dry cairn forty yards higher up the brae." Nor was the old man far wrong, for we found where the otter had squeezed himself up to the surface of the ground

again, leaving a small round hole in the snow. We carefully stopped up both entrances to this covered way, and then Donald went on with the dog to dislodge him from the cairn, having first given me the strongest injunctions to "*stand quite privately*" (*i.e.* quietly) a few yards from the hole which we had just stopped up. The dog at first seemed little inclined to leave me, but presently understanding the service upon which he was to be employed, he went off with Donald with right good will, putting his nose every now and then into the tracks of the otter in the snow, as if to ascertain how long it was since the animal had been there.

They soon arrived at the cairn, which was of no great extent, and not composed of very heavy stones. After walking round it carefully, to see whether there were any tracks farther on, Donald sent on the dog, who almost immediately began to bark, and scratch at a part of the cairn. Donald was soon with him, and employed in moving the stones, having laid down his gun for that purpose, knowing that the otter was quite sure to make straight for the place where I was standing, if he could dislodge him. Presently the dog made a headlong dive into the snow and stones, but drew back as quickly with a sharp cry. In he went again, however, his blood now well up; but the

otter's black head appeared at a different aperture, and now dog and man were dancing and tumbling about amongst the snow and stones like lunatics,—the otter darting from place to place, and showing his face first in one corner and then in another.

Donald found this would not do; so he again commenced moving the stones. Presently he called out to me, "Keep private, sir! keep private! the brute is coming your gate!" *Private* I had kept from the moment he had stationed me, till my fingers and feet were nearly frozen. Donald seized the dog and held him to prevent his running in the way. All this passed in a moment, and I saw the snow heaving up above the otter, who was working through it like a mole, assisted, probably, by the heather, which prevented it from being caked down in a solid mass, as would have been the case on a smooth field. I knew that he would appear at the hole which we had stopped, and therefore I did not risk a shot at him.

He worked on until he was close to the hole, when he emerged quietly and silently, and crept towards the well-known place of refuge. On finding it completely stopped up, the countenance of the poor animal assumed a most bewildered expression of astonishment and fear; and lifting himself up on his hind legs, he looked round to

ascertain what had happened. On seeing me he made off towards the river, with as long leaps as the snow would allow him; and as it was tolerably hard, he got on pretty quickly till my charge of shot put an end to his journey.

The report of the gun started two fine stags, who had been feeding along the course of a small open rill which ran into the river just above where we were; and I was astonished to see the power with which these two great animals galloped up the hill, although they sank deep at every stride. When half way up, they halted to look at us, and stood beautifully defined on the white snow; they then trotted quietly off till we lost sight of them over the summit of the hill. Donald in the meantime had carefully concealed the otter under the snow (marking the place by a small pyramid of stones), as I intended to have him skinned on our return home.

The lakes and the still pools being frozen, we saw several herons standing in their usual and characteristic attitude, waiting patiently in some shallow running water for any unwary trout that might pass within reach of their unerring bills; and here and there a heron, who appeared to have made his morning meal, was standing, as quietly and as unsubstantial-looking as his own shadow,

perched on one foot on a stone in the middle of the stream. A golden-eye or two were diving earnestly and quickly in the quieter parts of the river, taking wing only on my near approach, and after flying some distance up the stream, coming back again over my head, making with their rapid pinions the peculiar clanging noise which distinguishes their flight from that of any other duck. They passed me unmolested, for had we killed them they would have been useless. Indeed no diving duck is fit to eat, with the exception perhaps of the pochard and scaup; and even these, although I have heard them much praised, are far inferior to mallard, widgeon, or teal, which are, in my opinion, the only British ducks worth killing for the larder.

On leaving the birch-woods the country became wild and dreary, and frequently we had no small difficulty in making our way along the trackless snow. The otters had turned off here and there from the river, and we saw no more of their footsteps. A wild-cat had been hunting at one part of the banks, but had crossed where some stones raised above the water had enabled her to do so tolerably dry-footed. Although not so unwilling to get wet as the domestic cat, this animal appears to avoid the water as much as

possible, though I have known instances of their swimming rivers.

"We must try to get a brace of grouse or something to take up to the shepherd's," said my companion, "as you're no that fond of braxy, sir, and I doubt if we shall get any other 've-ni-son' there the night." "Indeed I am *not* fond of braxy," was my answer; "and a grouse or two we must get." But we had first to eat our luncheon, having breakfasted hastily at a very early hour, and we determined to perform this ceremony at a spring about a mile ahead of us; and, as I remembered having frequently seen a pair or two of ducks about it in frosty weather, when we drew near the place we advanced with great care, keeping ourselves well concealed till within twenty yards of the spot. "Now, then, Donald, you look over the bank, and see if any ducks are feeding on the grass about the well. If there are, you shoot at them on the ground, and I will take them flying." Donald wormed himself on a little, regardless of filling his pockets with snow, and, having looked cautiously over, beckoned to me to come nearer, which I did. "There are six bonny gray dukes feeding about the well, sir; three drakes and three dukes." "Take care then, Donald, and get two or three of them in a line

before you fire." After waiting a little with his gun pointed towards the place, Donald fired one barrel, and then as they rose the other. The latter killed none —"ut mos fuit." However, as only four rose (two of which, both mallards, fell to my two barrels), I presumed that he had done some execution with his first shot; and sure enough he had riddled two most effectually.

The place where the ducks had been feeding was a bright green spot in the midst of the snow, caused by the spreading of the waters of a fine unfreezing spring. Around it, also, were the tracks of several deer who had been cropping the green herbage, and had evidently sunk to their knees at every step which they made in the soft ground. Two snipes also rose while we were picking up our ducks.

As we ascended higher the river grew more rapid, and was the only object in our view which was not perfectly white. Having finished our frugal luncheon, and swallowed a modicum of whisky, we again "took the road," as Donald was pleased to express it, although road there was none.

The grouse had entirely disappeared, and we saw no living creature excepting a pair of gray crows, who alighted under the bank of the river. "There will be more of those fellows there," said

I. "'Deed ay, sir! do you mind those that we saw at first starting? they all came up this gate, and we've seen none of them. I'd like weel to get a good shot at them." We therefore went quietly on to the place, the crows being quite concealed from us by the bank. On looking over it cautiously, there they were, indeed, a whole flock of those most mischievous of all vermin. "Now then, Donald, take care, and kill all you can," said I. "'Deed ay," was his answer, with a quiet chuckle. The next moment our four charges of shot were driving through the midst of the crows, and such a *family shot* at these cunning birds was not often made, as we killed or maimed no less than seven. But the next instant, to our mortification, a magnificent white-tailed eagle rose not twenty yards from us, out of the bed of the river, where he had been feeding on another drowned sheep which had grounded there. He was so gorged that he could scarcely get clear of the banks. After a few wheels, however, he got well launched, and was soon wending his way towards the cliffs of the mountain ahead of us. Donald almost wept with vexation, but for my own part I did not regret the escape of the noble bird so much.

Turning round a bend of the river, we came

within sight of our resting-place for the night, but it was still a long distance off. On the left, rising with a clear outline in the bright sky, was the lofty mountain where we intended to try for ptarmigan. The snow, however, looked so deep on it that we began to think we might as well have stopped at home. But I was very anxious to get a few birds in their pure winter plumage, and determined not to give in, if any chance of success offered itself. As we approached nearer to the shepherd's hut, the hillsides, which were covered with fine old weeping birch, presented a most beautiful appearance; and here we saw a great many blackcocks, either perched on the leafless branches of the birch, or trying to make a scanty meal of the juniper berries, which they contrived to get at here and there, where the snow was not so deep. I shot a couple of fine old birds as they flew over our heads from one side of the river to the other; and Donald missed several more, as shooting flying is decidedly not his forte.

Our approach had been observed from a distance, and the shepherd was ready to receive us. His wife, "on hospitable cares intent," hurried to and fro, piling peats and fir-roots on the fire. I had got wet at the spring where we killed the ducks, and my trousers, higher than my knees,

were as hard as boards with the intense frost that had come on as the evening set in. However, "Igne levatur hiems"—I was soon thawed to a proper consistency, and immediately began to superintend the cooking of some of our game. In as short a time as possible a stew worthy of Meg Merrilies herself was prepared; but with true Highland taste Donald preferred, or pretended to prefer, some "braxy" mutton which the shepherd's wife set before him, the odour of which was enough to breed the plague or the cholera anywhere but in a Highland hut. "'Deed, your Honour," said the shepherd, "it's no that bad, considering we did not find the sheep for some days after it died, and the corbies had pulled it about a bit. The weather was gey an' wet at the time, or it would not have had such a high flavour; but we steeped it a day or so, to get rid of the greenness of the meat." I thought to myself that, "*considering*" all this, together with the additional fact that the sheep had died of a kind of inward mortification, the bowels of Donald and the shepherd must be stronger even than the "Dura illia messorum" which we read of at school.

Our host was tolerably confident that we should manage to get a few ptarmigan if we started early, so as to make the most of the day, and if the snow

continued hard. "But for a' that, it will be no easy travelling," was his final remark.

Before daylight I was up, and making my toilette by the light of a splinter of bog fir. The operation did not take long, nor did it extend beyond the most simple and necessary acts. The "gude wife" had prepared me rather an elaborate breakfast of porridge, tea, and certain undeniably good barley and oat cakes, flanked by the remains of my supper, eggs, etc. As Donald seemed not to like the expedition, I left him at the hut, with strict injunctions to procure enough black game or grouse to form our supper and next day's breakfast. The shepherd took down a single-barrel gun, of prodigious length and calibre, tied together here and there with pieces of string; and having twisted his plaid round him, and lit his pipe, was ready to accompany me. So, having put up some luncheon in case we were out late, we started.

The sun was not up as we crossed the river on the stepping-stones which the shepherd had placed for that purpose, but very soon the mountain-tops were gilded by its rays, and before long it was shining brightly on our backs as we toiled up the steep hillside. My companion, who knew exactly which was the easiest line to take, led the way; deeply covered with snow as the ground was, I

should without his guidance have found it impossible to make my way up to the heights to which we were bound. "I'm no just liking the look of the day either, sir," was his remark, "but still I think it will hold up till near nicht; we should be in a bonny pass if it came on to drift while we were up yonder." "A bonny pass, indeed!" was my inward ejaculation. However, depending on his skill in the weather, and not expecting myself that any change would take place till nightfall, although an ominous-looking cloud concealed the upper part of the mountain, I went on with all confidence.

Our object was to reach a certain shoulder of the hill, not far from the summit, from which the snow had drifted when it first fell, leaving a tolerably-sized tract of bare stones, where we expected to find the ptarmigan basking in the bright winter sun. It was certainly hard work, and we felt little of the cold, as we laboured up the steep hill. Perseverance meets with its reward; and we did at last reach the desired spot, and almost immediately found a considerable pack of ptarmigan, of which we managed to kill four brace before they finally took their flight round a distant shoulder of the hill where it was impossible to follow them. An eagle dashed down

at the flock of birds as they were just going out of our sight, but, as we saw him rise upwards again empty handed, he must have missed his aim.

By this time it was near mid-day, and the clouds were gathering on the mountain-top, and gradually approaching us. We had taken little note of the weather during our pursuit of the birds, but it was now forced on our attention by a keen blast of wind which suddenly swept along the shoulder of the mountain, here and there lifting up the dry snow in clouds. "We must make our way homewards at once," said I. "'Deed, ay! it will no be a canny night," was the shepherd's answer. Just as we were leaving the bare stones a brace of ptarmigan rose, one of which I knocked down: the bird fell on a part of the snow which sloped downwards towards a nearly perpendicular cliff of great height: the slope of the snow was not very great, so I ran to secure the bird, which was fluttering towards the precipice: the shepherd was some little distance behind me, lighting his everlasting pipe; but when he saw me in pursuit of the ptarmigan he shouted at me to stop: not exactly understanding him, I still ran after the bird, when suddenly I found the snow giving way with me, and sliding "en masse" towards the precipice. There was no time to hesitate, so, springing back

with a power that only the emergency of the case could have given me, I struggled upwards again towards my companion. How I managed to escape I cannot tell, but in less time than it takes to write the words I had retraced my steps several yards, making use of my gun as a stick to keep myself from sliding back again towards the edge of the cliff. The shepherd was too much alarmed to move, but stood for a moment speechless; then recollecting himself, he rushed forward to help me, holding out his long gun for me to take hold of. For my own part, I had no time to be afraid, and in a few moments was on terra firma, while a vast mass of snow which I had set in motion rolled like an avalanche over the precipice, carrying with it the unfortunate ptarmigan.

I cannot describe my sensations on seeing the danger which I had so narrowly escaped: however, no time was to be lost, and we descended the mountain at a far quicker rate than we had gone up it. The wind rose rapidly, moaning mournfully through the passes of the mountain, and frequently carrying with it dense showers of snow. The thickest of these showers, however, fell above where we were, and the wind still came from behind us, though gradually veering round in a manner which plainly showed us that it would be right ahead before we

reached home. Every moment brought us lower, and we went merrily on, though with certain anxious glances occasionally to windward. Nor was our alarm unfounded, for just as we turned an angle of the mountain, which brought us within view of the shepherd's house perched on the opposite hillside, with a good hour's walk and the river between us and it, we were met by a blast of wind and a shower of snow, half drifting and half falling from the clouds, which took away our breath, and nearly blew us both backwards, shutting out the view of everything ten yards from our faces.

We stopped and looked at each other. "This is geyan sharp," said the shepherd, "but we mustn't lose a moment's time, or we shall be smothered in the drift; so come on, sir:" and on we went. Bad as it was, we did not dare to stop for its abating, and, having fortunately seen the cottage for a moment, we knew that our course for the present lay straight down the mountain. After struggling on for some time we came to a part of the ground which rather puzzled us, as, instead of being a steep slope, it was perfectly flat; a break, however, in the storm allowed us to see for a moment some of the birch-trees on the opposite side of the river, which we judged were not far from our destination. The river itself we could not see, but the glimpse

we had caught of the trees guided us for another start, and we went onwards as rapidly as we could until the storm again closed round us, with such violence that we could scarcely stand upright against it. We began now at times to hear the river, and we made straight for the sound, knowing that it must be crossed before we could reach home, and hoping to recognise some bend or rock in it which would guide us on our way.

At last we came to the flat valley through which the stream ran; but here the drift was tremendous, and it was with the utmost difficulty that we got to the water's edge. When there, we were fairly puzzled by the changed aspect of everything; but suddenly the evening became lighter and the drifting snow not quite so dense. We saw that we should soon be able to ascertain where we were, so we halted for a minute or two, stamping about to keep ourselves from freezing. My poor dog immediately crouched at our feet, and, curling himself up, laid down; in a few moments he was nearly covered with the snow: but the storm was evidently ceasing, at any rate for a short time, and very soon a small bit of blue sky appeared overhead, but in a moment it was again concealed by the flying shower. The next time, however, that the blue sky appeared, it was for a longer period, and the snow entirely

ceased, allowing us to see our exact position; indeed we were very nearly opposite the house, and within half a mile of it. The river had to be crossed, and it was impossible to find the stepping-stones: but no time was to be lost, as a fresh drift began to appear to windward; so in we went, and dashed through the stream, which was not much above knee-deep, excepting in certain spots, which we contrived to avoid. The poor dog was most unwilling at first to rise from his resting-place, but followed us well when once up.

We soon made our way to the house, and got there just as another storm came on, which lasted till after dark, and through which, in our tired state, we never could have made our way. Donald and the shepherd's family were in a state of great anxiety about us, knowing that there would have been no possible means of affording us assistance had we been bewildered or wearied out upon the mountain. The shepherd himself was fairly knocked up, and could scarcely be prevailed upon to take either food or drink, or even to put off his frozen clothes, before flinging himself on his bed. For my own part I soon became as comfortable as possible, and slept as soundly and dreamlessly as such exercise only can make one do. I must candidly confess, however, that I made an inward vow

against ptarmigan-shooting again upon snow-covered mountains.

No person who has not been out in a snow-storm on lofty and exposed ground can form an idea of its force, and the difficulty there is in ploughing through the drifts and deep places; I certainly had no conception of what it was until that day. A change of weather came on during the night, and by noon the next day all was again bright and clear, and we reached home with little difficulty. The wind and drift had been much less severe near the house, and the tops of the trees were still covered with masses of snow, which the wind had not been powerful enough to dislodge.

Before the ice and snow break up on the higher grounds of the river there is generally plenty of wild-fowl shooting about the open pools near the sea. At the commencement of snow the birds are usually tame enough to make the sport good, and with the assistance of my retriever I often bring home a heavy bagful of ducks, etc.; but without a retriever, and a good one too, wild-duck shooting is utterly useless anywhere.

In wild-fowl shooting more than in any other kind of sporting, a perfect knowledge of the ground and of the different haunts of the birds is indispensable. The sportsman must make himself

acquainted with their feeding-places, their drinking-places, their resting-places, and in fact with all their habits, at all hours and seasons, and during all changes of the weather: without this knowledge, which can only be acquired by experience and careful observation, the wild-duck shooter will brave the winter's cold and wind in vain.

A good sportsman, as regards other game, may live for many a long month in a country abounding with ducks without ever seeing one within shot. Continually when I ask people about the wild-ducks in any particular neighbourhood, the answer I get is, "Oh, yes! there are plenty of ducks, but they always keep out at sea, and never come within reach." Now if there are plenty of ducks out at sea, it is a matter beyond all doubt that at certain hours there are plenty of ducks feeding inland; and about the time when my informant is dressing for *his* dinner, the wild-ducks are flying to and fro in search of *theirs* in the stubble-fields, which they invariably do as soon as the sun sets, and the fields are deserted by the workmen and others.

As no bird is so easily scared from its usual haunts as the wild-duck, all long and random shots ought to be avoided, as tending to frighten away the birds and to spoil all chance for some time to come in that spot. Ducks, too, are capricious, and

changes of wind and weather induce them to fly in different directions and to feed in different fields; and, as I have already said, nothing but experience and observation can teach the sportsman how to be tolerably sure of filling his bag with these wary but excellent birds.

There is one kind of wild-duck shooting which appears to me to be the very lowest of all kinds of sporting, namely, that which is usually called "flapper-shooting," which means murdering large numbers of young ducks by dint of dogs, guns, sticks, etc., at a time of the year when nine out of ten of these birds cannot fly, and are utterly helpless and unable to escape. A vast number of half-fledged birds may be slaughtered in this manner, but they are useless when obtained. For my own part I would quite as soon go out to kill young grouse in June or July before they could fly; nor do I see that killing "flappers" is at all less murderous or more excusable. In fact no wild-ducks ought to be killed till they are strong enough on the wing to fly easily and quickly; nor are they worth killing for the larder until they have fed for some time in the stubble-fields, for till then their flesh is as muddy and soft as that of a coot or moorhen.

HIGHLAND SHEEP.

CHAPTER XXXV.

Introduction of Sheep into the Highlands—Aversion of Highlanders to Sheep; disliked by Deer also—Prophecy—Activity of black-faced Sheep; instincts of—Mountain Sheep in enclosures—The Plaid; uses of; various ways of wearing; manufactures of; invisible colours—Shepherds—Burning of Heather—Natural enemies of Sheep—Shepherds' Dogs—Origin of Dogs.

Until within the last few years the Highlanders had a strong prejudice against the introduction of sheep on their mountains. Their dislike to this useful animal was founded on several causes. In the first place the Celt dislikes *any* innovation or change in his old customs; in the next he had a dread of clearances, *i.e.*, of small holdings being done away with, and merged in large farms; and he feared also that the black cattle, the former staple produce of the Scotch mountains, would be again forced to give way before these intruders; and I firmly believe that one of his greatest objections to the sheep was that the red-deer have a strong

dislike to the company and smell of the woolly strangers. I do not, however, conceive that this antipathy on the part of the deer arises from any aversion to the sheep themselves, but from a dread of their accompaniments—the shepherds, shepherds' dogs, and the tar, the odour of which appears to be most distasteful to all wild animals.

I remember, too, being gravely told by an ancient white-headed Celt, that there was an old and undoubted prophecy, to the purport that the Highlands would be overrun and ruined by a race of "white dwarfs," and that this had now been fulfilled by the introduction of sheep.

When the Cheviot sheep first came into the North, the sheep-farmers brought with them for the most part their own shepherds from the lowlands, or rather from the borders; a fine stalwart race of men, Armstrongs, Elliots, Scotts, and others, whose names have long been famous among the wild and dreary hills which rise between Scotland and England: formerly reevers and harriers of other men's cattle and chattels, they now follow the more peaceful occupation of shepherds and drovers; and only occasionally show the fiery spirit of their hardy ancestors by breaking each other's heads at some border fair or market. But the genuine Highlander has not, I think, yet sobered

down into a good shepherd; and the border men still form the most persevering and careful guardians of the large flocks which now fill all the northern mountains.

In most parts the border sheep, the Cheviot at least, have taken the place of the old black-faced breed, being more profitable in wool, and growing more quickly to a profitable size for the butcher. I must own to having a strong prejudice in favour of the picturesque little black-faced sheep, with their long wool and horns. Nothing, too, can be more adapted to our scenery than these animals; wild and active as goats, they scramble with the sure foot of a chamois over the most impracticable-looking rocks in search of some sheltered nook or shelf where the grass is early and green, or for refuge from any fancied danger. On the most impassable-looking and perpendicular face of a corrie, where there does not appear to be standing room for a raven, the black-faced little fellows wind their way in single file in search of favourite spots of pasture.

A sheep, though correctly enough designated an animal "patiens injuriæ," is by no means without abundance of instinct and sense. Watchful to a degree, they are a constant annoyance to the deer-stalker, who loses many a shot by the object of his

long and weary crawl and scramble being suddenly warned of its danger by the cry of the sheep, a loud sound between a hiss and a whistle. No sooner does the red-deer hear a sheep utter this warning cry than he starts to his feet as if he had heard a rifle-shot, and is off in an instant. Nor does the red-deer ever mistake the direction from which the danger is to be feared. Guided by the appearance of the sheep, he sees at once which way to go in order to avoid his unseen enemy.

Mountain sheep have a great foreknowledge of alterations in the weather; and I have frequently seen them changing their ground in a body before the commencement of a storm, which as yet was not foreseen by myself. Nevertheless, the sheep-farmer occasionally suffers great loss by drifting storms of snow towards the end of winter, when the sheep are weak and in poor condition. The length of time that sheep will exist under snow is astonishing, particularly when a number are buried together, the warmth of their breath and bodies keeping an open space round them sufficient for breathing room. Floods occasionally carry them off from the low lands near the mountain streams; and yet they are by no means bad swimmers. I have seen black-faced sheep actually swim into a creek of the sea to escape the pursuit of a dog;

but in rapid currents they soon get subdued and drowned.

Amongst other instances of sagacity in sheep, I have often been amused by the perfect knowledge which they have of the boundaries of the farm to which they belong. From being frequently driven back when found wandering, they soon learn the exact boundary lines within which they are left in peace both by the shepherd and his dog.

It is a mistake to suppose that the black-faced sheep taken from the mountains are so very difficult to keep in enclosed fields. In the case of my own small flock, which I keep for the use of my family, I find that if brought from the open mountain the sheep never attempt to get over the fences, and content with their improved keep, and unused to walls or palings, they do not seem to think it possible to get out of the field. If, however, they come from an *enclosed* farm, they generally have already found out that fences *can* be surmounted: and then nothing will keep them in; once out, they go straight off, wandering to considerable distances, sometimes, indeed, making direct for their former home. Broken walls and ill-kept palings have taught them the use of their legs, and, this once learned, they are active enough to get over anything.

However wild the black-faced sheep may be when first brought down from the mountains, those which I have had very soon become quite tame, and not only crowd round their daily barrows of turnips in the winter, snatching them out of the hand of the old man who feeds them, but soon, after a little shy coquetry, will eat biscuits and apples from the hands of the children, will follow them into the house, and sometimes become such pets, that their destined fate at the hands of the butcher is often deferred *sine die.*

Though Highlanders are scarcely yet reconciled to sheep as inhabitants of their mountains, they know full well how to benefit by that most useful product of their fleece—the plaid. Summer or winter, the Highlander will scarcely ever stir out without his plaid, and numberless are the different modes in which he folds and wears it, so as best to suit all changes of temperature and weather. I have seen in a London paper an advertisement offering to teach young ladies the use of the "fan" in six lessons, for the moderate consideration of five guineas. Although it seems incredible that the fair advertiser can meet with pupils, yet it is clear she does, or she would never incur the expense of long and repeated advertisements. Now if some well-skilled wearer of the plaid were to commence busi-

ness as teacher of the various ways and shapes in which its folds may be arranged both for picturesque effect and for utility, he would be far more deserving of encouragement than the five guinea teacher of the "use of the fan." The great advantage of a plaid over every other garment for the pedestrian, traveller, or sportsman, on the mountain side, is, that in sunshine and dry weather, folded in a rope-like twist round the body, it is no encumbrance, and can be so disposed as to be entirely out of the wearer's way, however much he may have occasion to use his arms. Should, however, a cutting blast or a cold rain come on, the plaid can be made to perform well all the offices of a cloak, either short or long, and one that will completely keep out a shower of any moderate duration. Very little rain is absorbed by a plaid if of good materials, tolerably new, and well put on. The drops run off the long wool; it takes a long time before it begins to soak through, and an hour's breeze dries it again.

I have shot through many a long day with a plaid round me, without feeling in the slightest degree encumbered by it, and knowing at the same time that it was always at hand, like a friend in need, to shelter myself and gun from the sudden squalls of wind or rain which are so frequent on

the mountains during the autumn. When you are seated in a pass, waiting for roe, the trusty plaid is a most valuable friend; or when waiting for wild duck or swan, it covers you and your dog from the shower of sleet or snow which would otherwise frequently oblige you to wend your way homewards, perhaps at the very moment when your chance for shots was the best.

The shepherd makes use of his plaid not only as a protection against cold and wet, but also as a pocket or bag in which to carry anything or everything he may wish to take with him: one end being sewed up, although it does not take away from the general utility of the garment, forms a pocket of wondrous capacity, in which, without inconvenience to the wearer, no small amount of weight and bulk may be carried. The weakly lamb often is taken home in this warm receptacle, while the anxious ewe follows, bleating incessantly, but apparently with perfect confidence in the good intentions of her master. In fact its uses are endless; and those, and those only, know its real value who have thoroughly learnt how to put it on, so as to suit all weathers, all states of the atmosphere, and, above all, the direction and the power of the wind.

A good plaid is not, however, always to be bought at a shop; and unless the wool be new and

well spun, and the fabric tight and regular, it will disappoint the wearer. When I speak of *new* wool, I mean that the wool of which the plaid is made should be new. But in these days, when all manufacturing processes are cheap, and the demand for woollen goods enormous, great quantities of old and worn-out clothes are ground, or rather *teased* up again, with machinery invented for the purpose, and are rewove into *new* cloth and plaiding. The worthlessness of all goods in which this renovated trash forms a considerable portion may easily be imagined.

I am inclined to think that in the smaller woollen manufactories such tricks are less easily and less frequently played. At the bonny and pleasant little town of Forres I have for many years had most excellent and trustworthy pieces of plaiding made for me, of all degrees of fineness and coarseness; not only rough coarse fabrics, made of black-faced wool, for a winter dreadnought shooting-coat, impervious to cold or wet, but also the finest and softest plaiding for ladies' dresses. Nor did I ever put any of my Forres-made stuff into the hands of a tailor, Scotch or English, without its being pronounced superlative of its kind.

Nothing is so invisible on the hillside as the common shepherd's check, of a small pattern. It

forms a *tout ensemble* of an indistinct gray colour, which is most difficult to distinguish from a gray stone or rock; indeed, at a certain distance this kind of gray becomes almost invisible. I have tried many shades of colour, but never found anything so suited to purposes of concealment as the common small-sized black and white check.

Dressed in this kind of stuff, and sitting motionless against a rock, I have seen a roebuck, or even a red-deer, approach within a few yards of me without the least suspicion, although I was otherwise entirely unconcealed.

I am inclined to think that wild animals and birds judge by the outline far more than by the colour of any object, and immediately detect any change in the shape of an accustomed rock or bush; and hence it is so difficult to look over your place of ambush without being immediately discovered. Variations of colour alarm them much less, because all objects are perpetually changing their colour, according as they are wet or dry, in sunshine or in shade. In wild-fowl shooting I have often observed that when placed even in front of a bush I am not seen by the birds in the evening, but that, however dark it may be, they take alarm if I show the smallest part of my cap above the bush.

A Highland shepherd leads, or ought to lead, a

most active life. If he perform his duty zealously, he has little time for idleness, for on a mountain sheep-farm every season of the year demands constant attention and activity. Sheep have sometimes an obstinate preference for those parts of their pasturing ground which the shepherd particularly wishes to reserve for another part of the year. The fresh green grass which ought to be their food for the winter is equally attractive in the earlier part of the year; and they require to be constantly driven away from the tempting spots. Mountain sheep, when they have once found out a favourite piece of feeding ground, be it grass or even the shepherd's own bit of oats, are most determined marauders. Although they are always ready, conscious of their guilt, to fly at the first distant appearance of the shepherd or his dog, they are equally eager to return the moment that the coast is clear. A skilful shepherd will always endeavour to make such arrangements as shall secure good feeding for his flock at all seasons. On the green banks of many mountain streams these animals can find food when the higher grounds are white with snow. There are long green stretches of this kind on the upper part of the Findhorn, enlivening with their brightness the dreary brown mountains of the Monaghleahd,

through which the river flows. A certain portion of the heather should be burnt every season, so as to produce a fresh supply of young and tender shoots. On these fresh patches all animals delight to feed. The red-deer comes from the far off corries, where he has lain in quiet, rest, and solitude, to graze on the short, sweet plants of the young heather which spring up the first season after the hill has been burnt, and nothing so perfectly suits the grouse as these patches. Short as the heather is, it is a region of abundance to these birds; and in rainy weather they take to the bare spots to escape the wet dropping off the higher and older plants.

Sheep, if allowed to do so, will feed so constantly on the newly burnt heather as entirely to prevent its growing; and it is therefore necessary to keep them off for a certain time to prevent this evil. It happens frequently that by burning the heather when it is too dry, or owing to some carelessness on the part of the shepherd, the fire gets such power that it cannot be checked when required, and thus much damage is done, miles of hill are laid bare at once, and the advantage of having a constant succession of food coming on is lost. When once the fire becomes thus powerful, nothing stops it excepting heavy rain, or the accident of its burning in

the direction of some stream wide enough to form a check to the devouring element. Plantations of considerable extent are sometimes burnt. In Strathspey this year (1848) a great loss occurred from this cause. Heather for miles in extent was burnt, and nearly a hundred acres of fine plantation were destroyed before the fire could be checked—a miniature imitation, in short, of the prairie burnings of the far West. A large heather-burning on a hillside has a most picturesque appearance in a dark night, as the flames dance rapidly along the slopes, making the surrounding darkness appear still more deep. When the burnings occur too late in the season, and during the time that the grouse and black game have eggs, great destruction takes place, not of the eggs only, but of the parent birds; whereas judicious burning is advantageous equally to the sheep-farmer and the grouse-shooter, the same succession of heather of different ages being requisite for the well-being of both sheep and game.

The wild enemies of sheep in Scotland are daily and rapidly decreasing. A very few years ago the sheep-farmer sustained great loss from foxes, eagles, ravens, etc.; even the common gray crow will take to killing the new-born lambs, pecking out their eyes as soon as the little animals are dropped, and,

if not killing them on the spot, leaving them to perish miserably. The foxes on some of the more inaccessible mountains still keep their ground, and in the lambing season do an immensity of damage, for this animal has the destructive inclination to kill not only as many as she requires for the food of her young cubs, but every lamb which she can manage to get hold of, leaving the bodies on the ground, or slightly concealing them.

I imagine that all animals who, like foxes, hide a part of their prey, only return to this reserve of food in the case of their not being successful in their hunting for fresh game. All hiding birds and animals prefer feeding on a newly killed prey, the blood of which is still warm. Sometimes, if driven by hunger or unsuccessful hunting, they return immediately and dig up what they had laid by: sometimes several days elapse before they return, and often the hidden bodies are never re-visited at all.

Eagles kill a considerable number of lambs, carrying them up to their eyrie without difficulty; indeed a good shepherd, if he does his duty by his master, has constant employment in watching and guarding his charge. Without the aid of his dogs the best shepherd would be perfectly helpless on our extensive mountain ranges; in fact, without

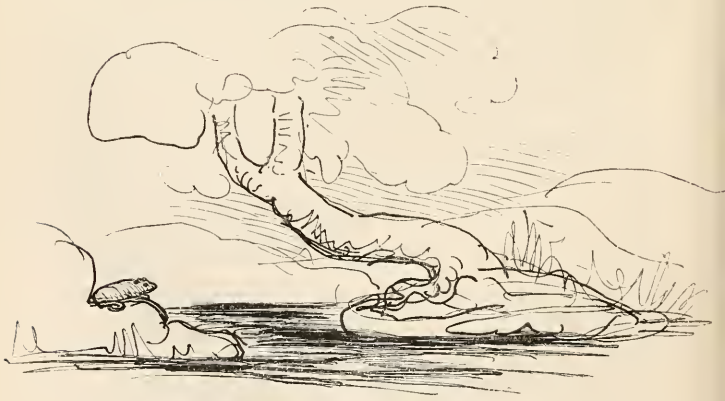
sheep-dogs the sheep would, in spite of all the shepherd's exertions, be everywhere, anywhere, nowhere: we should have to give up eating mutton, or to stalk and shoot the sheep like red-deer. This is not a fanciful assertion, but would absolutely be the case. The very great sagacity of these dogs in their own line of business is perfectly astonishing; and I have frequently given up an hour or two of my grouse-shooting to watch the manœuvres of a shepherd and his dogs, and have thought the time well bestowed.

Some of the breeds of the Scotch sheep-dog have a very strong resemblance to the wolf, so much so as to lead one to adopt the theory that the domestic dog, notwithstanding all its varieties of size, shape, and disposition, is derived originally from this animal. The wild-dogs of Africa and India, who in packs hunt down the larger wild animals, and are said to worry to death even the lion and tiger, are adduced as disproving this supposition. But these wild-dogs do not appear to be the indigenous and native denizens of the wilderness, but to have originated from domestic dogs who, having become ownerless, had turned wild. Although we all know that the wolf can seldom be tamed, some few well-authenticated instances prove that this animal sometimes entirely throws aside its natural blood-

thirsty disposition. In the Edinburgh Zoological Gardens there is a fine large wolf who shows as unmistakable signs of gratitude and pleasure at being caressed as any spaniel could do.

The wolf and dog of the Arctic regions resemble each other so much in appearance as to induce casual observers to suppose that they are very nearly the same animal; but, notwithstanding this likeness, there seems to be the most deadly and relentless warfare carried on between the two animals.

The fox has in my opinion far less right than the wolf to claim affinity to the dog; at least the relationship must be much more remote.



GAME-DEALERS.

CHAPTER XXXVI.

Poulterers' Shops—Supply of Game—Red-deer—Deer killed in the Fields—Roe—Grouse and Black Game; calling of—Shooting Hares by night—Pheasants—Advantages attending the sale of Game by the fair Sportsman and the Landed Proprietor—American Game—Wild-fowl in Shops—Bird-dealers in Leadenhall Market—Norway Game—Manner of collecting—Hybrids—Introduction of new species of Game into Britain—Prolific Birds—Sea-fowl; their breeding-places—Solan Geese—Migration of Fish.

In these railroad-days, when carriage is so cheap and expeditious, the poulterers' and game-dealers' shops in most of the large towns of England and Scotland are supplied with game of every description in quantities that are quite astonishing. Red-deer and roebucks are to be bought everywhere, and, I am sorry to say, at nearly all seasons. Having easy communication, and constant dealings and interchanges with each other, the poulterers are able to supply to their customers almost any kind of game which may be asked for.

A red-deer, killed in Perthshire or Argyleshire, by the assistance of railway or steamboat, is in Liverpool or Manchester long before he has been sufficiently kept to suit the palate of a civic epicure; and the poacher has such facilities in getting rid of his killed game that half the risk of his occupation is gone. The stag is scarcely cold before it is whisked off two counties away.

Considerable numbers of red-deer are killed in the neighbourhood of preserved places and forests during the winter season. When his natural grazing becomes scarce, a stag, if there be a turnip-field within half a dozen miles of his haunts, is sure to find it out, and pay it nightly visits; at first, coming alone, but soon accompanied by a herd of followers, who do great damage to the farmer by trampling down and eating the turnips. The owner of the field, if he has so little of a Highlander about him as to be able to resist having a shot at the deer himself, is sure to have some hanger-on or acquaintance who will take the trouble off his hands: accordingly, when the moon is of a good age, a hole is dug in the middle of the field during the day-time, while the nightly marauders are miles away. Towards twilight the poacher conceals himself in this rough hiding-place; if there is snow on the ground he puts on a white cap

and shirt over his other dress, and waits patiently till he hears the tread of the deer. Having fed with impunity more than once in the place, they come boldly and without hesitation into the midst of the field, scooping out the turnips with their teeth and breaking them to pieces with their sharp hoofs as they pass to and fro through the crop, playing and frequently fighting with each other. If the wind—that bugbear to deer-stalkers and deer-poachers—does not betray the presence of their enemy, it is more than probable that before many minutes are over some unfortunate stag comes close to the place of ambuscade, when he receives either a couple of bullets or a handful of slugs in his shoulder. Startled by the report, and not at the first moment knowing whence it comes, the rest of the deer are likely enough before they make off to collect in a group in the middle of the field, perhaps within a few yards of their hidden enemy. If so, another of the herd is probably killed, and the remainder rush off and do not return to the same tempting spot for some little time. Before daylight the hole is refilled, the dead game is taken away, and no traces remain of what has happened. Roe are constantly killed in the same manner, and are even caught in snares made of strong small rope.

Black game and grouse are obtained by the poachers in great numbers late in the season, by means, not only of tame call-birds of both sexes, but also by a call-pipe. However wild they may be and inaccessible to the fair sportsman, these birds can always be brought within shot by some means. A cock grouse on hearing the well-imitated call of the female immediately answers it, and, approaching by repeated short flights, stopping every now and then to crow as if in defiance of any rivals, or to give warning of his coming, is soon killed. The female grouse is attracted in the same manner by an imitation of the call of the male.

So pugnacious a bird as a blackcock is very easy to call till he comes within shot of the concealed shooter: and indeed partridges, and all other birds, are attracted by those experienced in imitating their different notes, in a manner and with a facility which is quite surprising to the uninitiated.

I am told that some poachers can even allure a hare within shot during a moonlight night by imitating the cry of one of its own species: this, however, is a fact for which I cannot vouch; but many poachers, from constant watching and following in silence these animals, acquire such a perfect know-

ledge of their habits, manner of calling to each other, etc., that I by no means deem it impossible.

Hares, like deer, travel considerable distances to obtain their favourite food, and are therefore easily killed by the nightly poacher, either by being snared or shot en route. Practice and natural keenness enable some of these fellows to get the animal to the summit of some rising ground, so that the clear sky shall be behind it, and they can thus shoot a hare on nights when there is no moonlight, and when an unpractised pair of eyes would be scarcely able to distinguish a house from a tree.

Pheasants are killed by snare and gun as easily as barn-door fowls would be: so that the unprincipled dealer in game has not the slightest difficulty in keeping his shop full enough to supply the demands of all customers at all seasons.

I can imagine no better system for sportsmen to adopt than that of underselling the poacher as much as they possibly can. In Scotland, in particular, where the right to shoot game is bought, and very often at a high rate, I can see no reason whatever why the purchaser should not sell again what he has paid for. In recommending this to the renter of shooting-grounds, I only advocate his selling in a fair and liberal manner his overplus of game; not, of course, his hiring ground for the mere sake of

traffic and gain: but even when this is the case the landlord has seldom much cause of complaint. In the first place he, the landlord, makes a traffic of his game by letting it; and in the second place the tenant, who in these commercial speculations is generally a permanent one, if he wishes to make money by the game, must take care to preserve and increase it proportionably.

The custom of selling game is, I am glad to see, becoming very general amongst the principal proprietors. To the careless observer it may at first appear an unjust proceeding for the landlord to sell game which feeds on the farms of his tenants; but, practically, I scarcely know an instance where the latter are not most amply remunerated; indeed the farmer can legally claim indemnification if his landlord is so unjust and unwise as to refuse it. It should be remembered also, that although rabbits, hares, and deer undoubtedly do much damage to crops, all flying game are assistants rather than enemies to the farmer.

In many of our larger towns the game-shops are even supplied with birds from America, which are brought by the steamers viâ Liverpool. The ruffed grouse, a very beautiful bird, and excellent for the table, a smaller species of grouse, and even the far-famed canvas-backed duck, find their way over in

these rapid vessels. The latter bird, however, does not seem likely to become a profitable article of commerce, as the price at which it is sold in America is greater than can be obtained for it in this country. Although the canvas-backed duck is a kind of pochard, yet, unlike our ducks of that species, it does not feed by diving, but almost wholly on the wild celery and other succulent plants; and this it is which gives its flesh the exquisite flavour so much praised by all who have eaten it. Excellent as our own mallards are when well fed in the corn-fields, the canvas-backed duck is undoubtedly far superior.

Besides the common eatable ducks, such as the mallard, the widgeon, and the teal, golden eyes, scaup ducks, scoters, and indeed every possible variety, are to be found in the large poulterers' shops: swans, geese of all kinds (the bernacle goose from Ireland principally, and the brent goose from almost all our coasts), are to be had in profusion: but these birds, and indeed all wild-fowl, are so variable in their flavour, according to the feeding-ground they come from, that the careful buyer should always endeavour to learn where they have been killed.

Strange as it may appear, mergansers, goosanders, and all the fish-eating and rank-tasted birds,

even including cormorants and sea-gulls, find consumers among the inhabitants of large towns, who are exceedingly omnivorous, and by no means over fastidious in their tastes; and so wide is the range of ornithological traffic in which the poulterers engage, that the bird-stuffer and the collector of specimens cannot do better than make friends with them.

But beyond all other places, Leadenhall Market is the emporium to which the purchaser of rare birds and animals, living or dead, should betake himself. There is scarcely a quadruped, from a brown bear to a white mouse, or a bird, from a golden eagle to a long-tailed tomtit, which cannot be found there; and not a few of the dealers in these articles are themselves curious specimens of the genus homo, accustomed to deal with every description of customer, from the nobleman who wishes to add to his menagerie or to the feathered tenants of his lake, to the organ-boy who wants to purchase a dormouse or monkey. They are as shrewd as Scotchmen, and as keen bargainers as a Yorkshire horse-dealer: but although somewhat over-suspicious in making their purchases, and sadly deficient in elegance of manner and language, they are on the whole by no means bad fellows to deal with, if care be taken not to "rub them

against the grain." Singing-birds, hawks, cats with brass collars and chains, ready got up for tabby-loving spinsters, Blenheim spaniels, and wicked-looking bull-dogs, pigeons, bantams, gold-fish, in short every kind of bird or beast that was ever yet made a pet of is here to be bought, sold, and exchanged, and frequently the collector may obtain very rare and valuable specimens. Holland and Belgium supply great quantities of wild-fowl, canaries, carrier pigeons, etc.; and on a busy day the traffic in this division of Leadenhall Market is a most amusing sight.

One thing which especially surprises the visitor to this market is the total defiance of the game laws which all the dealers indulge in. There is scarcely a description of game which cannot be bought here at any season, legal or illegal; and it is difficult to understand how game laws and their penalties can be so openly and systematically infringed. Pheasants and pheasants' eggs, grouse and grouse eggs, etc. etc., are undisguisedly and unblushingly sold at all seasons, in defiance of informers and magistrates. On asking how it happens that the dealers can supply game of all sorts at all seasons, you are gravely told "that it is all foreign game." Scotch grouse are called Norwegian grouse, and good English partridges and

other game are libelled by being called Dutchmen or Frenchmen. It is certainly true that vast numbers of white grouse come from Norway. These birds, as well as the capercailzie, are caught or shot as opportunity offers during the winter, are subjected to the cold until they are thoroughly frozen, and are kept in that state until a full cargo is collected, or at least until a ship sails for London, Hull, or some British port. Although perhaps as many as eighty capercailzies may come over in one ship, it is not to be inferred that these birds are so numerous as to allow of this number being killed in the course of a short time in one place. They are generally obtained in very small numbers. Each peasant brings in one or two: these are all bought up and "frozen" by one general dealer, who periodically, or as opportunity offers, sends them to some poulterer in all-devouring England. The same system is carried on with regard to the Norwegian grouse or ptarmigan, the facility of freezing the birds enabling the dealers of that country to keep them until they have collected a sufficient number. A capercailzie killed in winter is to my taste scarcely eatable, owing to the strong flavour of turpentine which then pervades the flesh of the bird; I have, however, eaten one brought over early in the year, and it was almost as well-

tasted as any of our British game. It is to be hoped that in time we shall again see this noble kind of grouse tolerably common in the extensive plantations of fir and larch which are springing up on many of our Highland mountains which hitherto have been covered only by the heather.

Both in Scotland and Norway, wherever the capercailzie and blackcock inhabit the same district, hybrids between them are by no means uncommon. The difference of size between the male capercailzie and the gray-hen is very great; but the female of the former bird is much smaller than the male, being frequently very little larger than a full-grown blackcock. Both species, too, being polygamous, there is a greater chance of their breeding together than of hybrids between the blackcock and the grouse, those birds always pairing. The blackcock is a perfect Turk in his domestic establishment, taking to himself as many wives as he can collect together, and keeping them by force of arms against all rivals.

In the recent reintroduction into Scotland of the capercailzie a spirited example has been set us; and there is no doubt that many other species of grouse and game birds might be naturalised in Britain. The ruffed grouse, for instance, and several other species from America, and also phea-

sants and other birds from the higher ranges of the Himalaya mountains, would not only be ornamental but valuable additions to our woods and hills; nor can it be doubted that many of these beautiful birds would do well and increase in this climate, provided they were allowed for the first few years to breed and multiply undisturbed.

On considering the immense quantity of game and wild-fowl which is daily exposed in poulterers' shops throughout the entire kingdom, the question naturally suggests itself, "Will not these birds be soon extirpated?" But, to all appearance, the supply continues amply to meet the demand year after year. By the beneficent arrangement of Providence all birds adapted for the food of man are far more prolific than the birds of prey, or than sea-gulls and those other birds the flesh of which cannot be eaten.

The nesting-places of sea-gulls and some other kinds of water-fowl are curious things to see. The constant going to and fro, the screaming, and wheeling about of the old birds and the apparent confusion are perfectly wonderful. The *confusion* is, however, *only* apparent. Each guillemot and each razor-bill amongst the countless thousands flies straight to her own single egg, regardless of the crowds of other birds, and undeceived by the

myriads of eggs which surround her. So, also, in the breeding-places of the black-headed and other gulls, every bird watches over and cares for her own nest—though the numbers are so great, and the tumult so excessive, that it is difficult to conceive how each gull can distinguish her own spotted eggs, placed in the midst of so many others exactly similar in size, shape, and colour; and when at length the young are hatched and are swimming about on the loch, or crowded together on some grassy point, the old birds, as they come home from a distance with food, fly rapidly amidst thousands of young ones, exactly similar to their own, without even looking at them, until they find their own offspring, who, recognising their parents amongst all the other birds, receive the morsel, without any of the other hungry little creatures around attempting to dispute the prize, each waiting patiently for its own parent, in perfect confidence that its turn will come in due season.

The breeding-rocks of the solan geese, the Bass Rock in the Firth of Forth, and Ailsa Craig on the west, will well repay the trouble of visiting them. Rows of the nests thickly cover the ground; and wild and wary as these birds are at other times, during the breeding-season they will not move from their nests until actually lifted off by the hand.

The eider-duck, peculiarly wild and shy as it is, is equally tame while sitting, allowing herself to be handled, and her nest to be robbed, not of its eggs, but of the valuable down of which it is composed, without attempting to move from it.

It is a singularly interesting sight to witness a number of the solan geese fishing on a calm day in the Firth of Forth. Following the shoals of herring, these handsome birds dash one after the other into the water with a force which is actually astonishing, coming up (and almost invariably with a herring in their bill) several yards from the place where they made the plunge. They do not rise to the surface gradually, like most divers, but suddenly, like a cork, or as if their buoyancy equalled that of a bladder. The peculiar manner in which the skin of this bird is attached to the body, leaving large intervals where the flesh and skin seem scarcely at all connected, may give it this peculiar lightness, which to the spectator is extremely striking.

During the severe winter season the solan geese disappear from the Bass Rock, going no one knows where; but even at that season two or three fine warm days bring them all back again. Their abiding places are probably regulated more by the supply of food than by the weather.

I am by no means of opinion that either herring,

salmon, or other so-called migratory fish, leave our coasts during those seasons when they disappear, or rather, I should say, when they are not caught. I am more inclined to think that they always continue in the same neighbourhood, retiring only to the depths of the ocean, where they rest quietly, safe from nets, instead of betaking themselves, as the general opinion is, to the other end of the world.

FISHERIES.

CHAPTER XXXVII.

Supply of Fish in Scotland—Herring-fishery—Highlanders coming to Herring-fishing—Fishermen of East Coast—Difference of Language in Nairn—Departure of Herring-boats; dangers to which they are exposed—Loss of Boats and Lives—Fishing in good weather—Loch fishing—Fishing Stations on West Coast—Fishing for Haddocks, etc.—State of British Sea-fisheries.

THE northern seas and bays of Scotland swarm with fish to an almost unequalled extent; and although in many situations and districts considerable use is made of this bountiful provision of nature, it cannot be doubted that much greater benefit might be obtained from it.

As far as relates to commercial speculation the herring holds the first place, or nearly so. The fishermen on this eastern coast go out about the middle of July, previous to which they have been for some weeks employed in preparing their boats, overhauling their tackle, and engaging extra hands, generally Highlanders, who come down to the coast at this season in order to hire themselves to the

owners of the boats for the six or eight weeks during which they are out at sea. These men earn during the season from three to six pounds, a perfect godsend to the poor fellows, whose eyes are seldom gladdened by the sight of hard money during the rest of the year. Just before the time when the herring-boats go out, the roads are dotted with little groups of Highlanders, each man having a small parcel of necessaries tied up in a handkerchief and carried on a stick over his shoulder. They are sadly footsore and wayworn by the time they have traversed the island from the west coast. Being little accustomed for the most part to walking anywhere but on springy heather and turf, the hard roads try them severely. Most of them are undersized and bad specimens of the Celtic race. Very little English is spoken amongst them, as not one in ten understands a word of anything but Gaelic. When they have occasion to go into a roadside shop to purchase anything, or to ask a question, a consultation is first held amongst the party, and then the most learned in Saxon is deputed to act as spokesman, for there is scarcely any Gaelic spoken along the east coasts, the fishermen in particular being almost wholly a foreign race of people, that is, not Highlanders. Some are English settlers, and some are descendants of Danes and other races who have originally been left by chance or choice

on this coast. Their names are frequently Danish or Swedish. In fact they are altogether a different people from the Celtic inhabitants of the neighbouring mountains. There is an almost regular line drawn through the country, where the Gaelic language ends and the English commences. The town of Nairn is divided by this line, one half of the inhabitants being talkers of Gaelic and the other speaking only English. It is said that one of our prime ministers boasted to a foreigner that his master, the King of England, possessed a town so extensive that the inhabitants of one end spoke a different language from those of the other end. Nairn was the town in question; and whatever the merit of the joke may be, it corroborates what I stated.

To return, however, to our Highland fishermen. Wearily and heavily the poor fellows labour along the road, and by the time they reach Forres, Nairn, and the other towns near the shore, they are sadly knocked up, their food during the journey having been poor and scanty, consisting generally of potatoes, and perhaps oatmeal, mixed up frequently with cold water, a sorry mess for a Highlander who is taking the unaccustomed exercise of tramping along a hard road. Many of these men know pretty well where, and by whom, they shall be hired, but others have to seek employment where they can. Their faces grow visibly shorter as soon as

they are engaged; and they set to work, though possessing little seamanship, to assist in putting into order the nets, floats, stores, etc. In a few days every boat is afloat and ready. Then comes the parting-glass with their shore-staying friends, which, by the by, is often multiplied until it amounts to a very fair allowance.

As the boats set sail from the small harbours and piers, the wives and families of the fishermen who belong to the place come down to see their relatives off; and many groups of weather-beaten women sit and watch the boats till out of sight, discussing anxiously the chances of a good or bad season, a matter of no light import to them, as their comfort during the rest of the year almost entirely depends upon it.

I have frequently seen some stout boy, strong and fearless, but too young to be allowed to accompany his father, hide amongst the nets, sails, etc., in the boats, hoping to get taken out unobserved, till they were too far out at sea to send him back. The little fellows, however, seldom succeeded, and were generally chucked, unceremoniously enough, out of the boat, either on to the pier whilst the boat was passing alongside of it, or into some of the numerous haddock and other fishing-boats which lie at anchor in the harbour.

The herring season, although a time of hard

work to the men, is for the most part a time of rest to the women. Instead of having to tramp, as they shortly hope to do, miles into the country with a weight of fish on their back which would be almost a burthen for a donkey, they have little else to do than to gossip with each other, and set lines about the harbour and shores, excepting in those places where the herrings are cured and put into casks for foreign consumption, where they are busy enough. The boats which go out from many of our small towns seldom return home again until the season is over; but leave the produce of their fishing at the curing stations every night if possible.

The herring-fishermen have not only much hard work, but many dangers to contend with. Whilst far out at sea tending their nets during the night-time, storms of wind suddenly come on; and a scene of hurry and confusion ensues which can scarcely be imagined. Anxious to save their tackle and unwilling to lose any chance, the men in some boats are busily engaged hauling up their nets; other boats are driving past them with everything in confusion and their sails flapping in the wind. Others, manned by more prudent and able hands, who have forseen the coming storm, are scudding with everything snug for the nearest port, and lucky are the boats which reach it without loss of tackle or life. Frequently, by waiting too long, whilst

endeavouring to save their nets, the poor herring-fishers are placed in the utmost danger, and are driven helplessly out to sea, where they either toss about at the mercy of the winds and waves till the storm somewhat abates, or are swamped and lost, the men probably having been wearied out by their efforts to keep the boat's head straight to avoid shipping the broken waves which surround them. The crews too, the chief part of whom are generally landsmen, or, at best, men accustomed only to the calm waters of the west coast lochs, become disheartened and useless at the hour of need, affording little assistance to the "skipper" of the boat, who is probably the principal owner also, and who, if he saves his life, has the prospect before him of heavy loss or ruin. Many and many a herring-boat flounders in this way at sea, her crew worn out by their exertions. At other times an inshore wind dashes the boats on the iron-bound coasts off which they have been fishing, and the crews perish before the eyes of their wives and families. Instances have occurred of a crew reaching some rock within a short distance of the shore, and within hearing of those assembled on the beach, who, after having vainly attempted to afford them assistance, see the poor fellows gradually washed off one by one as their strength fails them during the rise of the tide. There are but few harbours on

the east coast into which the boats can run if caught in a storm and driven away from the safer parts of the coast. If a heavily laden herring-boat is overtaken by rough weather, it is very difficult to get rid of the cargo quickly enough to escape being swamped. In fact the throwing them overboard is a long operation; and sometimes, when they have a lucky haul, they load until the gunwale of the boat is but a few inches above the water. In this case the shipping of a single wave is sufficient to swamp them. A cargo of large fish, such as cod or skate, may be thrown overboard with some degree of quickness—not so a cargo of herrings.

Although the months of July and August generally pass over without any very dangerous weather, September is frequently a season of sudden squalls and storms on our coasts.

This year, 1848, one of these sudden storms came on towards the end of the fishing season. It reached from the north coast to near Sunderland, beyond which place the wind was comparatively light. The boats had gone out with a gentle breeze, nor had there been any warning of bad weather; but before morning, on the east coast alone, more than a hundred fishermen were drowned, and the loss of boats, nets, etc., was immense. Nothing could be more melancholily significant of

the havoc which that storm had caused than the fact of *one* fisherman bringing to his house *fifteen* blue bonnets, the owners of which must have all perished near the same spot. Fishermen are generally men with large families, and the numbers of widows and orphans left dependent on the charity of the world in these cases are always very great.

This is the gloomy side of the picture of herring-fishing; but it has its bright one, for I do not know a more exhilarating sight than the fleets of herring-boats standing out from all the larger towns between Wick and the Firth of Forth on a fine day during the fishing season. All along the coast, where at other times the indolent habits of the fishermen are prominently seen, everything now evinces life, energy, and activity.

Hundreds of brown-sailed boats go out from some of the harbours at once, the place resounding with the loud but good-humoured greetings and jokes, from one boat to another, as they pass with all speed of sail and oar to the herring-grounds, each eager to be the first to reach the place so as to have choice of station. A fresh but gentle breeze takes them merrily out, and their nets are cast and fixed, buoyed up by their large round floats, or by what are much used in some places, prepared dogskins—a most unworthy fate for so noble an animal. To make these floats they cut

off the head, and take the whole body out at the aperture, leaving the skin otherwise entire. It is then dressed and tarred over. The neck is stopped up by a wooden plug made to fit it, and the skin having been thus rendered water-tight is filled with air, legs and all; so that the float consists of the entire dog minus his head. Blown up and extended as it is, and black with tar, it is about as ugly but as serviceable a float as can well be imagined.

The herring-nets being laid, the men, if the shoals do not appear to be on the move, set to work to fish for cod, halibut, etc., of which they frequently catch great numbers, earning in this way a considerable addition to their wages. Warned, however, by the cries and activity of the sea-birds, and by other well-understood signs, all at once they take up their lines, in order to attend to the main object of their fishing, and in a few minutes you see every boat hauling up the herrings which hang in the meshes of the nets, and glance like pieces of burnished silver as they break the surface of the water. Sometimes the dog-fish do great mischief, biting the herrings in two, and tearing the nets. When, however, all goes well, the nets are soon hauled in, and the fish disentangled from them as quickly as possible, and in a surprisingly short space of time all is made ready for another draught.

Sea-birds innumerable attend on the herring-boats, finding it easier to pick up the dead fish, whether whole or in pieces, which fall into the water, than to dive after the living ones. The larger gulls eat immense quantities. I was assured that a black-backed gull has been seen to swallow five goodly-sized herrings in rapid succession. He was then so utterly gorged and unable to move that he was caught. All these flocks of birds enliven the scene—some, like the gannets, dashing down from a height into the calm water, and almost invariably catching a herring; others diving and attacking the shoals far down beneath the surface; while the gulls for the most part feed on the maimed and broken fish. Every bird, too, seems to be trying to scream louder than the rest, and such a Babel-like mixture of sounds can scarcely be heard anywhere else. Altogether it is a most interesting and animated scene, and to see it in perfection it is well worth while to take the trouble of passing a night in a herring-boat instead of in one's bed. In fact I can truly assert that two nights spent many years ago in herring-fishing have kept an honoured place in my memory, and are looked back to as among the most amusing of my out-door adventures.

A different mode of pursuing this fish is resorted

to when the shoals take to the lochs or salt-water inlets on the west coast. The scene is then one of singular interest and beauty. The fishing is carried on in what looks like a calm fresh-water lake, winding far up into the mountains, which, overhanging the water, echo back with startling distinctness every sound which is uttered on its smooth surface. The picturesque rocks, dotted with noble old birch-trees, with their weeping branches hanging like ladies' tresses over the deep water of the bay, and the gray mountain slopes above these, add a beauty to the scene which is so unexpected and so unusual an accompaniment to sea-fishing, that to be understood it must be seen. Hundreds of boats are actively employed in every direction, whilst larger vessels lie waiting to get their cargo of fish complete, and then stand out from the bay, winding round its numerous headlands until they can take advantage of a steady wind blowing from some one certain point, instead of from two or three at once, as mountain winds always do. In addition to these vessels which are bound for Liverpool, Dublin, London, or elsewhere, there is the Government cruiser, distinguishable at once by its symmetry and neatness, lying near the mouth of the loch, with its tall mast and long yards, keeping order amongst the thousands of men who are all rivals in the same

pursuit and all eager for the best places, or what they consider as such. When she fires her morning and evening gun, or makes any other signal, the echo is repeated again and again loud and distinct, and then dies away with a rumbling noise like far off thunder, as the sound penetrates up some distant glen. The deer feeding on the grassy burns of the corrie hear it, and lifting their heads, listen intently for some minutes to the strange sound, until having made up their mind that it is not a matter that concerns them they resume their grazing, only listening with increased watchfulness to every noise.

As the risks and expenses of carrying on the herring-fishings are large, so are the gains considerable, if the season is favourable and the fishing lucky.

It would be a very great assistance and cause of safety to the seamen on our northern and most frequented fishing stations had they the advantage of a few small steamboats, or tugs, such as we see in such numbers issuing out of the Tyne and other rivers of England, grappling with great black colliers and traders several times as big as themselves, and carrying them off (as a black emmet does a blue-bottle fly) in spite of wind and tide.

One small steam-tug could tow a line, a perfect Alexandrian line, of herring-boats to and from their

fishing-stations; and in the event of an approaching storm, a change of wind, or other dangers, they would be of the greatest use in bringing home the boats, nets, etc., under circumstances in which, at present, much danger and much loss of life and property are sustained.

There is a general emigration from many of the western stations as soon as the herring season is over. Men, birds, beasts, and rats among the rest, all desert them. Of birds the number is very great: having assembled to feed on the refuse of the herrings, particularly at the curing stations, they now depart in all directions; whilst the rats have occasionally been seen migrating in large numbers from Wick and other places, and distributing themselves through the country, in order to change the fish diet, which they have for so many weeks luxuriated on, for a vegetable one. On the east coast, where the agricultural population is numerous, the refuse of the herrings is used in great quantities as manure, and being laid out in large heaps on the fields preparatory to being mixed with other substances, poison the air and attract great numbers of sea-gulls, who appear very willing to exchange fresh fish for that which is half rotten; but a sea-gull has a most convenient and unfastidious appetite, thriving on anything that comes in his way.

The Highlanders who have assisted at the fishing on the east coast now return home with heavier bundles and purses, but lighter hearts; however, I fear that many of the inhabitants of the fishing villages spend a great part of their hard-earned wages in whisky instead of applying it to the comforts of their families. Some are more prudent, and lay the money by, in order that in due time they may become owners of a herring-boat themselves.

The inhabitants, at least the males, of fishing villages are an indolent-looking race, going about all their land occupations in a slow and lazy manner, and being for the most part remarkably ignorant. But we should bear in mind that they spend their nights at sea, in laborious and fatiguing occupation, exposed to cold and wet, and that it is only during their intervals of rest that we see them, when they are lounging about half asleep, and leaving to their wives the business of preparing their lines and selling the fish.

The coiling of a long line, with about three hundred hooks on it, is a mystery to the unpractised and uninitiated. Each haddock-boat takes out coiled lines with from two to three thousand baited hooks upon them; and yet so perfectly and skilfully are they arranged that they never catch or

entangle, but run out with as great certainty and ease as a ship's cable.

The haddock-fishing on the coast is carried on in smaller boats than the herring-fishing; each boat has, however, more hands on board, partly for the sake of rowing, and partly of working these long lines, or "*shooting*" them, as it is called.

The boats frequently run forty or fifty miles to set their haddock and cod lines; going from Nairn and the adjacent fishing villages over to Wick, where they are almost always sure of a plentiful supply of fish.

Trawling for flat fish has not yet been tried to any extent, but I have no doubt that it would be a most profitable and useful speculation. At present we get no soles, but occasionally some turbot are caught: for these, however, the demand is confined to a few of the neighbouring gentry; and, consequently, this kind of fishing is not much practised. A boat's crew does occasionally go out to fish for turbot, using a very simple and small kind of hang-net, and generally brings home a good supply.

Looking at the state of British sea-fisheries in general, it appears to me undeniable that the advantage derived from this great and inexhaustible source of wealth is as nothing compared to what it might and ought to be. It is true that of late

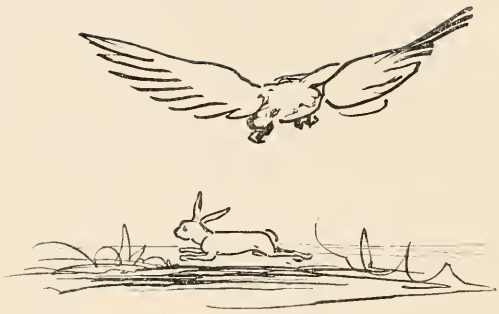
years some enterprising individuals have done, and are doing, a great deal towards improving this branch of commerce; and the speculations recently entered into for the more regular and more abundant supply of the southern markets will doubtless lead to more extensive competition and to improved methods of fishing; but Government might, I conceive, greatly promote this important branch of national industry by regulating the size and construction of the boats, which are often most miserably inefficient, encouraging the fishermen in every possible manner, affording them the protection and assistance of large vessels and steamers at different points, during the busiest times of the fishing season, expending sums of money in tackle, boats, etc., to be repaid or partly repaid by the fishermen, and also by having surveys made and soundings taken off many parts of the coast, in order to find out the banks and feeding places of the cod and other large fish. The Dogger Bank, and all the principal fishing-grounds have been discovered by chance; and it cannot be doubted that were a careful survey made, many other equally prolific localities would be found.

The fishermen would at once know, were they provided with plans of the different depths, etc., of the sea, where the best spots would be for fishing,

according to the nature of the bottom, the currents, tides, etc. But they are quite unable to make these observations themselves from want of proper boats, etc.; nor can a simple fisherman afford to spend weeks or days of fine weather in taking soundings and making systematic series of experiments; and hence it is, as I said before, our best fishing banks have been found out by chance.

In short, our fisheries, by careful attention on the part of Government and by a very moderate outlay of public money, might be made the source of food and employment for thousands and tens of thousands more of our suffering population than are at present supported by them. The seas which surround our coasts contain an inexhaustible supply of wholesome and nutritious food, and nothing is required to render it largely available to all but a more efficient, systematic, and well-regulated mode of procuring it.

APPENDIX.



THE VERTEBRATE FAUNA OF SUTHERLANDSHIRE.

By T. E. Buckley, B.A., F.Z.S., Member of the British Ornithologists' Union ; and J. A. Harvie-Brown, F.R.S.E., F.Z.S., Member of the British Ornithologists' Union, President Royal Phyl. Soc., Edin., and Corresponding Member of the American Ornithologists' Union, etc. etc.

Introductory ; and Physical Aspects.

In the joint preparation of this account we have considered that while Mr. T. E. Buckley takes in hand the eastern districts of the county, as having had greater experience of that portion, Mr. Harvie-Brown should undertake the western and northern portions for the same reason, and it became advisable to define more accurately the two districts thus separated. This was done with comparative ease, as the high road between Lairg and Tongue formed a very natural as well as convenient division ; Mr. Buckley knowing more of the fauna to the east of that line, and Mr. Harvie-Brown more of the fauna to the west of that line. An advantage is also found in that it fairly well represents a natural division between the high and rugged ranges of the western land, and the smoother, more gently undulating, moss and moorland of the eastern division ; which latter, though it claims amongst its most noticeable features several goodly mountains, such as Ben Clibrick and Ben Armine, and a wild stretch of deer-forest around Dunrobin, yet, is per-

haps better described as a vast waste of moorland with oases of woodland, and in the east and south a considerable portion of reclaimed land and forest-growth.

Sources of Information.

Of published records of the Fauna of Sutherland, the authors have consulted the following, which are believed by them to represent all that has been published, or nearly so :—

A Tour in Scotland. J. Pennant. 1769.

Tour in Scotland and Voyage to the Hebrides. J. Pennant. 1774.

The Old Statistical Account of Scotland, consisting of 21 8vo volumes, each of from 500 to 600 pages, published between 1791 and 1797, and containing separate accounts of no less than 938 parishes, with many references to the Faunas of these parishes, some of which are valuable, and others of little use.

A History of the Earldom of Sutherland, to the year 1630, by Sir Robert Gordon, Bart. ; first published in 1813, giving a curious account, often before quoted, of the *Ferœ Naturæ* which roamed through the great old forests of those days.

Macgillivray's British Quadrupeds (Naturalist's Library, vol. xvii.) 1833.

On the Quadrupeds and Birds Inhabiting the County of Sutherland, by P. L. Selby and Sir W. Jardine, Bart. *Edin. New Phil. Journal*, January and April. 1836.

A Voyage round the Coasts of Scotland and the Isles, by James Wilson. 1842.

The New Statistical Account of Scotland, vol. xv., relating to Sutherland, and published in 1845.

Wild Sports of the Highlands, by Chas. St. John. 1846.

The Birds of Sutherland and Ross-shire, by Milner. (*Zoologist*, 1848, p. 2014.)

A Tour in Sutherland, by Chas. St. John, in which a List of the Birds of Sutherland is given. 1849.

A List of Fish that have been Found in the Moray Firth and in the Fresh Waters of the Province of Moray, by the Rev. Geo. Gordon. *Zool.* 1852, pp. 3454 and 3480. 1852.

Fish and Crustacea of the North-East Coast of Scotland, by the late Lieutenant Dyce and George Sim.

This principally refers to "fish found in the vicinity of Aberdeen," but is useful for comparative purposes.

Notes on the Ornithology of Caithness, by Messrs. Shearer and Osborne (*Proc. Royal Phyl. Soc. of Edinburgh*, vol. ii. 1861). 1861.

In vol. iii. of the above, mention is made of various rare species recorded as obtained in Sutherland and Caithness.

On the Distribution of Birds in Great Britain during the Nesting Season, by A. G. More (*Ibis*, 1865). 1865.

A most valuable paper, Messrs. Shearer and Osborne being still the only authorities quoted for Caithness, and Mr. W. Dunbar (since deceased) the only authority for Sutherland.

Sporting Days, by Mr. John Colquhoun. 1866. Contains a chapter on the Wilds of Sutherland, and a List of the Birds of the district, pp. 235-255.

Two papers in the *Zoologist* on *Nesting Tours in Sutherland*, by J. A. Harvie-Brown. 1867 and 1868.

Colquhoun: Lecture on the Ferœ Naturæ of British Isles. 1873.

Bell's *British Quadrupeds* (2d Edition). 1874.

On Birds found Breeding in Sutherland, by J. A. Harvie-Brown. Glasgow. 1875.

On the Mammals and Reptiles of Sutherland, by Edward R. Alston and J. A. Harvie-Brown. Glasgow. 1875.

Supplementary Notes on the Birds found Breeding in Sutherland, by J. A. Harvie-Brown, F.Z.S. *Proc. Glasgow Nat. Hist. Soc.*, Sept. 1877.

Fauna of Scotland—Mammalia, by Edward R. Alston, drawn up at the request of the Council of Nat. Hist. Soc. of Glasgow. 1880.

Day's *Fishes of Great Britain and Ireland* (parts 1-7). 1880.

On the Birds of the East of Sutherland, by T. E. Buckley, F.Z.S. (*Proc. Nat. Hist. Soc., Glasgow*, Ap. 26, 1881). 1881.

Manuscript List of the Fish of Caithness, with notes by C. Peach, Esq. Kindly placed at our disposal for purposes of the present Fauna. 1884.

List of Fishes of Banffshire, by T. Edward. Morris' *Naturalist*, vol. v. 1855.

This referring to a county bordering upon the Faunal or Catchment Basin of "Moray," we consider it desirable to include for comparison's sake, but this has been worked into Day's MS. List.

Contributions to the Ichthyology of Banffshire, by W. (*i.e.*, Rev. Walter Gregor), *op. cit.* 1855.

In Arbuthnot's *Account of Peterhead* there is what he calls "A Nat. Hist. of the Fishes found on the coasts of Buchan," which is not of much importance, but may be mentioned. 1815.

The above, along with our own note-books, journals, and egg-books, the assistance of several kind friends resident

in the county, and our personal observations conducted therein, are the materials which are at our disposal for this fauna. If imperfect in the part relating to fish, it is simply because a great field for observation remains here almost as yet untouched, and though many species are known with almost absolute certainty to occur along the coasts, yet the actual results are scarcely sufficient to formulate anything like a correct estimate of the faunal value.

Geographical Position of Sutherland.

The counties of Sutherland and Caithness, the most northerly of the mainland of Scotland, possess a very extensive coast-line, together being more than three parts surrounded by sea, and Sutherland itself having a sea-board of at least two-thirds of its total circumference. It is bounded on the west by the more northern portion of the Great Minch, the channel that lies between the mainland and the Outer Hebrides,—a rich and comparatively unworked area of the great Stornoway herring-fishery. On the north and north-west the broad Atlantic laves its great cliffs and headlands, a few solitary islets alone intervening, such as North Rona and Souliskeir. The eastern shores are washed by the waters of the North Sea from the Ord—the Caithness and Sutherland march—until the south-east corner is reached at Dornoch, and here the southern coast is bounded by the still waters of the Dornoch Firth.

The whole of this coast-line teems with fish, a vast mine of wealth almost untouched on the west side ; but the want of good and sufficient harbour and pier accommodation, especially on the more frequented east coast, prevents the proper development of these fisheries.

The remaining portion of the east of Sutherland is bounded by the eastern watershed of the Halladale and Helmsdale rivers, the hills forming which, much higher near the east coast, divide the famous grouse-moors of Caithness and the Duke of Portland's deer-forest at Berriedale from the great eastern moors of Sutherland.

Following the boundaries at the head of the Dornoch Firth in the south, comes the Kyle of Sutherland, which latter stretches its tidal waters inland to a little beyond the mouth of the river Cassley. Proceeding westward, the river Oykel resumes the office of the Kyle, and for some ten miles, between Rosehall and Oykel Bridge, separates this county from Ross-shire on the south. All along this boundary line, and upon the northern bank of the Kyle and river, runs the high road between Bonar Bridge on the Dornoch Firth, and Oykel Bridge on the river of that name. Between Oykel Bridge and Altnagealgach the high road crosses over a peninsular portion of Ross-shire, which abuts upon the previous line of the county march, and here the boundary, following the Oykel river to Loch Ailsh, runs up to near Coinnebheal, turning southward along the top of Braebag and out at Altnagealgach, the high road again entering Sutherland at this point. At Altnagealgach the march commences on the south side of Loch Borrolan, and includes the whole of the watershed of that loch to the top of the Cromalt hills, the chain of lochs of which Veyattie and Fewn are the chief, and the river Kirkaig, the latter continuing down to the sea, and separating Sutherland from the county of Cromarty, which here approaches it on the south.

The total area of Sutherland, excluding water-areas, is put down by the Ordnance Survey at 1,297,848 acres. In addition to this are the areas of fresh water contained within its boundaries, amounting to 47,631 acres or thereby; foreshore occupies 12,812 acres, and tidal waters 1553 acres, or a total area of the whole districts under our consideration of 1,359,845 acres, or about 2124 square miles.

Of the land area 260,765 acres, or about 407 square miles are occupied by waste or non-arable land, composed of mountain or moorland, sheep-farm, and deer-forest, or "links" of sand, such as those between the Dornoch Firth and Dunrobin. Arable land occupies 31,787 acres, or about 60 square miles, including the improved lands at Lairg and in the parish of Kildonan, and the south-east

shore of Loch Shin, as well as the scattered plots of crofters' possessions here and there over the county, and others of the less important areas.

Of the fresh-water area, the largest body of water is Loch Shin, being 18 miles in length, and having an average width of one to one and a half miles. This great lake forms an almost continuous canal-way, along with Lochs Griam, Merkland, More, and Stack, between Lairg at the south-west end of Loch Shin, and Laxford Loch on the west coast, interrupted only by the watershed, of comparatively low altitude, between Loch Merkland and Loch More. Other large sheets of water, all holding salmon, or trout, or sea-trout and char, are Lochs Naver, Laoghal, and Hope, in the north, connecting with the Pentland Firth ; Lochs Assynt, Cama, Veyattie, Fewn, and Urigill ; and Lochs Stack and More before mentioned. In the east centre are the large lochs, Badenloch, Loch-na-Clar, and Rimisdale or Loch-na-Cuien, out of which flows the Helmsdale river ; and in the south-east is Loch Brora, through which flows the river of the same name, both it and the Helmsdale running into the German Ocean. Besides these larger reservoirs of water there are innumerable lochs, lochans, and tarns of smaller area, especially numerous in the western districts of the county.

Besides the above, we have a wooded area of natural birch-wood or planted ground, amounting in all, approximately, to 7296 acres, or about 11 square miles. By far the greatest part of this area is in the south-east, between Dunrobin and the Dornoch Firth, and, though somewhat reduced of late, the woods around Rosehall. Also those on the eastern bank of the river Oykel, and again at Tongue in the north and Loch Inver in the west ; but of these we will have again to speak when describing the physical aspect of the county. Even this comparatively small area of wood has a great influence on the fauna and flora. The above figures refer in most part to the last ascertained areas in Mr. M'Donald's paper in *The Highland and Agricultural Society's Trans.* for 1880. It would appear that in 1853 the woodland acreage was 10,812,

and in 1872 it had decreased to 7296. Since 1872 it is probable that the wooded area has again increased to 10,000 acres to date of 1883.

The physical features of our Highland counties are often indicated in the appropriate Gaelic names, usually descriptive of mountains, lochs, rivers, headlands, vales, valleys, rocks, and islands. Scourie means the pointed rock ; Stoir, the high-peaked cliff ; Meallmeadhonach, the middle or central hill ; Ben Chaoran or Harran, a high ridge contiguous with Ben More, means the hill of the cloudberries ; Glasbhein, the gray (*i.e.* stony) hill. So also Loch Gorm means the blue loch ; Loch Griam, the hill of the sun ; Loch-an-Hard, the high-lying loch ; Loch Clashmore, the loch of the great hollow, and so on. It has often seemed to us desirable that some good Gaelic scholar would work out all these interesting Gaelic names and tabulate them in each county, with their correct meanings : and we believe that Mr. Mackay of Portnacon could largely contribute towards such a desideratum.

Description of the Physical Features of the Eastern Division of Sutherland.

On the north coast, and east from the Kyle of Tongue, the shore gradually rises, and *ex adverso* of this part are small green islands, lying not far from the mainland, principal among which is the island of Roan, which is inhabited. At Naver Bay there is a considerable extent of flat sandy coast, the only bit of any size of the kind, until Sandside, on the Caithness side of the county boundary, is reached. From here the coast-line becomes bold and rocky, with vertical headlands of considerable height, such as Skerra and Strathy Points, and occasionally indented by small sandy bays of no great size, again getting lower, flatter, and of a more sandy character as the county of Caithness is approached.

The eastern coast-line of Sutherland consists mostly of sandhills, stretching from Port Gower in the north to the

Dornoch Firth in the south. The hills, which from the Ord to Helmsdale rise close to the sea, after passing the latter place begin to recede farther and farther inland, thus leaving an intervening flat, varying from one to two miles in breadth, which is mostly under cultivation ; in two places —Dunrobin and the Little Ferry—woods take the place of fields, which here come down to the sea. At several points along this line rocks crop up, which resist to a certain extent the ravages of the sea, though the latter is encroaching in some places very rapidly.

The whole of this eastern sea-board, which is rather more than twenty-five miles in extent, presents but little variety, the sandhills, which commence on the southern side of the Helmsdale river, continuing with little intermission to the Dornoch Firth. The beach affords a convenient nesting-place to such birds as the Arctic tern, oyster-catcher, and ringed plover, and sheldrakes breed in the rabbit-burrows in the sandhills. Wherever there are sandy cliffs high enough to afford a secure nesting-place, jackdaws build in numbers, and these do great havoc amongst the eggs of the terns and oyster-catchers.

Certain rocks which are bare at half tide are frequented by seals, mostly the Gray seal (*Halichœrus gryphus*), the Firth seal (*Phoca vitulina*) being less common along the open shore, though very abundant both in the Dornoch Firth and at the Little Ferry. On one occasion the Harp seal (*Phoca Greenlandica*) has been shot by Mr. Houstoun of Kintradwell, but its value not being sufficiently known, only the skin was preserved, and this was afterwards cut up for various purposes.

The wave of migration seems almost entirely to leave the Sutherland coast untouched, and this may account for the very small numbers of migratory waders that are to be seen, even in such an apparently favourable locality as the Little Ferry : a few bar-tailed godwits appear now and then, but even dunlins are scarce ; the mussel-scalps attract great numbers of oyster-catchers ; and in hard weather a good many golden plovers, driven off the hills, come down to the shores. The only gray plover

known to have occurred on this part of the coast was shot near Kintradwell, amongst some rocks, and was quite alone ; these patches of rock, too, are a favourite resort of the purple sandpiper, mixed with redshanks and a few turnstones, though the latter often keep in small flocks by themselves.

Leaving the coast-line, we next come to the cultivated district which lies between the sandhills and the rising ground ; this presents but little interest, excepting that the quail has been found nesting on one or two occasions near Brora and also near Dornoch, as recorded by Sheriff Mackenzie. The wooded district which occupies a portion of the same area, and extends also higher up the rising ground, is of considerable importance.

It may be as well to mention that there are no pine-trees in Sutherland of any great antiquity, probably none one hundred years old. The oldest now standing are situated between the Cassley and Oykel rivers, the next in age being those at Kilcalmkill or Gordonbush, and Kintradwell, which were probably planted about the same time. The great extent of country now under trees has all been planted within the last sixty or seventy years. Such an extent of newly planted ground, for so long a time barren, must, and indeed now does, exercise a decided influence on the fauna of the county. On the densely wooded side of Ben Bhraggie the badger exists :—one of the few remaining places in the county still frequented by it, though formerly they were apparently common.—The siskin nests here, too, and doubtless the crossbill also, though the only place where the latter is known to do so with certainty is in the Balblair wood at the Little Ferry. In the Uppat woods a female honey buzzard was shot in July, which might well have been breeding, though no nest has, so far, actually been discovered.

The greatest extent of wooded country lies in the parishes of Dornoch, Creich, and Golspie, though almost every parish possesses some newly planted ground, and should this prove a success, no doubt still more land will be thus treated : every strath, too, possesses some natural

birch ; of little value, however, except to give shelter to game and sheep, but all having influence on the bird life of the district.

In mentioning the cultivated districts, no account has been taken of the large tract of country ploughed up and reclaimed by the Duke of Sutherland in the parish of Kildonan, but as yet this has had comparatively little effect upon the fauna of that district. We understand, however, that plantations have been laid out there, and there can be no manner of doubt that, should the trees thrive, a few years will see a marked change in many forms of life.

In the north and south-west of this district no hills of any importance occur, but in the central districts the country assumes a different character. Entering Sutherland from the Caithness side, we find high ground all along the south-eastern part of the march dividing the two counties, one of the highest points being Cnoc-na-neranach or "the Irishman," as it is generally called, and we have on the same range an altitude of over 1300 feet close to the sea above Helmsdale. Most striking of all are the two Bens Griam, rising as they do in solid masses, straight from the wet flat moorland that characterises that part of the county, giving them an appearance of height even greater than that they actually possess, which in itself is considerable, being close on 2000 feet. At one time both this hill and the "Irishman," before mentioned, were inhabited by ptarmigan, but these have now been extinct there for some years, though as late as 1881 a single ptarmigan was shot on some flow ground near the first-mentioned hills, and a bird, probably the same, had been seen on one of these hills during the previous season.

South-west of the Bens Griam, and second highest of the Sutherland hills, comes Ben Clibrick, 3164 feet. From its rounded shape it does not convey the idea of grandeur and height possessed by many smaller hills, which have more rugged and rocky outlines. It is haunted by every bird and beast that is dear to the Highland sportsmen and naturalist, and was at one time one of the

best, if not the best, hill for ptarmigan in the county. Within a few feet of the top is a spring of the coldest water. Its eastern side is the most precipitous, and here the golden eagle builds in safety, its nest being so placed as to be inaccessible, though the eggs may be easily seen. At the foot of its eastern slope is Loch Choire, the head waters of the Mallert (Mheal aird[1]) river, one of the principal feeders of the Naver. Looking towards the east, from Loch Choire, the rounded group of hills that form Ben Armine rise, terminating in two high tops, Craigmore and Craigbeg, the former being 2306 feet in height. The ptarmigan is here fast dying out, very few being seen now. The eastern side is fairly precipitous, and is at times haunted by a pair of golden eagles, which are strictly preserved by the lessee of the shootings ; the western side is well wooded on its lower slopes, especially about Coir-na-fearn, a very favourite resort of deer. Stretching all round on the east and north are vast tracts of wet flow ground, intersected by burns which fall wholly into the Brora river, or rather that branch of it which is called the Blackwater.

The other hills of importance are, Ben Uarie, 1923 feet, and Ben a Veallich 1936 feet, in the parishes of Loth and Kildonan ; Ben Smeorale 1667 feet, and Ben Horn 1712, both in the parish of Clyne ; and Ben Bhraggie, in the parish of Golspie, 1282 feet. None of these hills present that rugged, wild, and rocky appearance that characterises those in the west ; they are for the most part smooth and rounded, the higher ones in the centre of the county covered towards the top with a coarse grass, which shows a vivid green in the sunlight ; the others, nearer the south and east, have heather growing up to their summits, which gets coarser and more stunted the higher it ascends. In some places, where the ground is sufficiently wet, what is called "deer's hair" grass appears, but this is more characteristic of the low, wet, flow grounds.

[1] In Ordnance Survey Map—inch scale—this is given "Abhainn a Mhail Aird," correctly Abhuin a Mh*ael* Aird or Mh*eal* Aird.

Although we have here mentioned the principal hills, it must not be understood that the rest of the county is quite flat,—far from it: the whole of the south-eastern parts, extending along the Caithness march and from the sea to the centre of the county, consists of moderately high hilly ground, highest near the sea, and gradually lowering in height inland until it ends in those large lochs and flat wet flows out of which the principal rivers of the county rise. This ground contains the most productive grouse-moors of Sutherland, some of them rivalling the best that Perthshire or Inverness-shire can show, though of late years disease, from which they are still suffering, has made sad havoc amongst the birds.

We have mentioned the word "flow" several times. A flow is a wet tract of ground, generally flat, though such can exist on a gentle slope where there has been no artificial drainage; this is covered by a short kind of grass, which in autumn assumes nearly the colour of a red-deer, hence its trivial name "deer-hair grass." Scattered through this tract are small ponds locally called "brulochans," some deep, others shallow: in the former a pair of red-throated divers may often be seen, and their nest found close to the edge, nor are they particular as to the size of the lochans, as we have seen them in one only about 25 yards long by about 15 broad. In the shallow pools, great bunches of the pretty "cotton grass" grow, and this is also scattered all through the flow district. This grass, which is locally termed by the shepherds "mossing," is of great importance to the sheep farmers, because, being the first grass that starts up in spring, it is of great service in helping the sheep to get into condition after the long winter. These flows are here and there intersected by deep, black, peaty water-courses, and these lead into the sluggish burns (whose edges are covered with good grass), which in turn meander lazily along, until, as they approach their outlets, they gain more rapidity and vigour. In the drier parts of the flow, heather grows, much intermixed with reindeer moss and different sorts of lichens. Grouse inhabit these drier places, and on

the bare hillocks the golden plovers have their nests. Gulls of different species breed here, though, owing to incessant persecution, are much rarer than formerly, *i.e.*,—those that are destructive to game or sheep, such as the herring gull and the great and lesser black-backed gulls.—If, in any of these larger "brulochans" we find a particularly boggy island, inaccessible almost, owing to deep mud and shallow water, there is often a colony of black-headed gulls nesting, and a pair or two of ducks, teal, widgeon, or, less commonly, coots. The wet flows themselves are the abode of the dunlin; and the wild-goose, though much rarer now than formerly, places her nest in a dry tuft of heather.

The greatest flow district is situated in the northern part of the parishes of Kildonan and Clyne, the central part of the parish of Farr, and the southern part of the parish of Reay, the ground getting drier by the drainage of the rivers of these districts as we approach the coast.

Having now given a general outline of the physical features of the land of our eastern division, we come next to speak of the rivers and lochs.

The rivers here included present in most cases a very different appearance to those of the west, being of a less wild and rapid character, and also less rocky, except in their middle reaches. The Shin, however, is an exception to this rule, being rocky throughout nearly the whole of its course. All the early spring salmon rivers lie in this district; the Naver, which issues from Loch Naver, drains the greater part of the parish of Farr, and falls into the sea on the north side of the county; the Helmsdale, which issues from the large lochs in the centre of the county, drains the parish of Kildonan, and falls into the sea on the east coast; as does also the Brora, which drains the greater part of the parishes of Clyne and Rogart; and the Shin, before mentioned, issuing from Loch Shin, which drains the parish of Lairg and falls into the Kyle of Sutherland in the east. These four all contain early spring salmon. The next of importance is the Halladale, which drains the parish of Reay, and runs into the Pentland Firth.

The parishes of Dornoch and Creich possess no rivers worthy of the name, the Evelix being the most important, and after that the Carnack, which runs into the Fleet, near its mouth.

There are two small rivers, one indeed no more than a large burn, which deserve a little notice. The first, the Lothbeg Burn, has a course of only some six miles, but it drains the wildest district in the whole of the east of Sutherland. Rising in the Meallanlia hills it runs through the ancient forest of Sletal, the hills rising on each side almost perpendicularly. The celebrated Sletal cairn is situated here, the scene of the death of the last Sutherland wolf, and possibly the last stronghold of the wild-cat in this part of the county, if such an animal exists here at all. This river enters the sea through an artificial cutting over which the railway now passes, but at one time it flowed into a marsh, which is now one of the best cultivated farms in the county; this drainage was effected by one of the present Duke's ancestors, who thus reclaimed a large extent of valuable land.

The other river is the Fleet, very sluggish in its lower reaches, and a great resort of sea-trout. At the mouth of this river and going through the marsh that lies to the south side of it, runs the high road to Dornoch, artificially raised above the sea level, hence its name, the "Mound." This mound was erected to keep the sea from the low lying grounds immediately inland, and sluices are placed at the mouth of the river to allow the surplus water to run off at low tide. This low lying ground is covered with alders and long grass, and is the best place in the county for wild-fowl, as they have the estuary of the Little Ferry, the only place of the kind entirely in the county, to resort to when disturbed inside, and *vice versâ*.

Lochs are not nearly so numerous in the east as in the west of the county, but still there are some magnificent sheets of water. Perhaps Loch Naver and Loch Brora bear off the palm for beauty, as their banks, and the slopes of the hills adjoining, are partially covered with trees; and, on the latter at least, bird life is abundant. At the head of

Loch Brora is a marsh where we have seen as many as thirty widgeon drakes together, and this in the breeding season.

The lochs in the centre of the district, desolate though they at first appear, have a wild beauty of their own. Badenloch, Loch-na-Clar, and Loch Rimisdale or Loch-na-Cuien, lie close together, the two first in fact running into one another, being only partly separated by a narrow spit of sand, which terminates in a heathery hillock. On this spit of sand, in former times, was situated a manufactory of flint arrows and spear-heads; and flakes of flint and churt are yet to be seen, together with the remains of ancient fires; in the long heather that fringes this hillock the reed-bunting places its nest for want of a better substitute, and round the gravelly and sandy shores of the loch the ringed plover lays her eggs.

This chain of lochs is the gathering ground for the remnant of wild-geese that remain to breed in the district, but these birds are decreasing yearly from some unknown cause, as they are now never shot, as used to be the case in former years, when as many as seventy, young and old, were sometimes killed in a single day.

Other lochs worthy of note are, Loch-an-Ruair and Liam-na-chlaven, in the northern part of Kildonan parish, Loch Choire, in the southern part of Farr parish, and Loch Migdale, in the parish of Creich, this latter remarkable as being the only loch possessing pike in the county.

Western and Northern Portions.

Mountains.

The great divide or backbone of Sutherland stretches northward from near the southern boundary, in the south-west of the county, to the limits in the north, of the Reay Forest, and then turns eastward by Ben Hope and the head-waters of the rivers running northwards to the Pentland Firth, terminating about the centre of the Caithness March.

The panorama of mountains opening up to view as the traveller approaches from the east by the mail road between Lairg and Assynt is not perhaps equalled in peculiarity of outline by any other in Scotland, although it may be excelled in grandeur by the almost Norwegian vastness of Coruisk in Skye, or the Romsdal-Horn similarity of the great mountains at the head of the narrow Loch Duich in Ross-shire.

Beginning in the south, we will mention the strange isolated mountains of W. Cromarty and Assynt, which meet the astonished gaze of the westward-bound traveller who for the first time penetrates among these further Highlands of Scotland. First, far to the southwards, from certain points of view is seen Ben Mohr Coigach (2438), with its peculiar hog's back or sierra-like ridge; Stack Polly (2009), with its splintered pinnacles of conglomerate; the rounded lumps and cones of Bens Coul Beg (2523) and Coul More (2786); the extraordinary terraced cliffs and sugar-loaf peaks of Sulbhein (2399); and the massive, far-receding slope and summit of Canisp (2779); with, lastly, the magnificent yet isolated range of Quinaig, whose numerous peaks reach elevations of from 2508 feet to 2653 feet.

Then, again, we find the attention attracted by the more continuous nature of the real backbone of hills; commencing in the south with Braebag (2044), rising rapidly upwards into the scarred and fretted face and summits of the huge Ben More, and its still bigger brother Coinneveal (Coinnemheall), 3273 and 3234 respectively, the highest peaks in Sutherland,—then follow, in a bold amphitheatric curve, Ben Chaoran (2500), Ben Uidh (2384), and Glashbhein (2541).

Away to the north and north-west extends a perfect multitude of mountains, chief amongst which are those of the Reay Forest, stretching from Ben Stack in the west (2364) and Ben Hee (2864) in the east, north-east to Ben Hope (3040), and including the isolated Ben Laoghal in the Tongue district (2504). To the north-west, and towards Cape Wrath, are Ben Arkle (2578), Foinnebhein

(2980), Graun Stackach (2630), Ben Spionnaidh (2537), and Fashven (Fashbhein) (1504). The stony tops of most of these great mountains are granitic or quartzose, and in the Reay Forest, of upper gneiss, covered with a soft carpeting of mosses and lichens on the summit-plateaux. Lower down the material is similar, but it is clothed in heather and grasses. The bases are in great measure of similar formation, except where the great outcroppings of the Durness and Assynt limestones appear, as at Durness, and in the great cliffs of Stronchrubie, Knockan, and Elphin, or where, as in Ben Stack, the Hebridean gneiss occurs, or interspersed with the Torridon conglomerates, as in the case of Quinaig, Canisp, and Suilbhein.

The vegetation of the limestones, as might be expected, is singularly rich and luxuriant, producing amongst the excellent general sheep-pasturage some rare Scottish wild-flowers, such as Dryas octopetala and others.[1]

The marvellous springs of clearest and coldest water which gush out of the Assynt limestone cliffs, the trans-

[1] Our thanks are due to Messrs. Lionel Hinxman and Ben. N. Peach, of the Geological Survey of Scotland, for the following List of Plants found by them on the limestone of Durness—principally on the islands of Eilean Hoan, and the Skerries, and Eilean Garbh —in July 1883 :—

Ranunculus acris, Cochlearia officinalis, Viola canina, Polygala vulgaris, Silene maritima, Arenaria serpylliflora, Cerastium triviale, Sinum catharticum, Trifolium ripens, Anthyllis vulneraria, Lotus coeniculatus, Potentilla anserina, P. tormentilla, Dryas octopetala, Sedum rhodiola, Ligusticum scoticum, Heracleum sphondylium, Archillea millefiorium, Daucus carota, Gallium verum, G. aparine, Knautia arvensis, Artemesia absinthium, Leontodon taraxacum, Antennaria dioica, Bellis perennis, Onopozdium acanthium, Carduus arvensis, Heiracium (spec. ?), Calluna vulgaris, Erica cinerea, Gentiana campestris, Myosotis arvensis, Euphrasia officinalis, Thymus serpyllum, Prunella vulgaris, Armeria maritima, Chenopodium album, Rumex pulcher, R. acetosella, Utica dioica, Orchis maculata, Scilla verna, Lugula campestris, Juncus acutiflorus, Plantago coronopus, P. maritima, P. media. Besides the above flowering plants, these gentlemen also found the following grasses ; and Asplenium marinum amongst the cryptogams :—

Grasses.—Anthoxanthum odoratum, Phleum arenarium, Alopecuous pratensis, Agrostis vulgaris, Holeus lanatus, Poa annua, P. pratensis, P. maritima, Cynosurus cristatus, Dactylis glomerata,

lucent, ultramarine blue of the lakes near Durness, as well as the thick coating of lime encrusted upon the iron kettles and domestic pots and pans, not to speak of the delicious white-fleshed, crustacea-fed trout of the burns, all speak to the great beds of calcareous formation which underlie the gneiss, and crop out at various points in the west and north, and which, near the farm and shooting-box of Ledbeg, and again near Loch Alsh, harden and whiten into a very pure and white marble, long known and worked as Assynt marble.

This limestone is a very marked feature in the landscape, and a not unimportant factor in the zoological conditions. Amongst these clear streams there is a rich crustacean fauna and other lower forms of animal life. We consider that the limestone of Durness has even left its impress upon the Salmonidæ of its streams and lakes.

The wild and rugged scenery of the west of Sutherland is not, however, due entirely to the vast masses of mountain, nor even to their peculiar shapes and isolated positions, though undoubtedly these are very important factors. Besides the greater majesty of the hills, there are many wild and sinuous valleys and picturesquely-grouped combinations of lesser elevations, which introduce a charm which one might look for in vain if the hills stood alone in all their nakedness. There are wooded lakes and birch-clad hollows, heathery knolls and gray lichen-covered boulders, sparkling rivers and cascades ; and there are the quaint, and quiet, and "bonny" peat-reek shealings, and closely-nestling crofts and cabins—abundant scope for the artist, who complains of the vastness of the subjects presented by the higher mountains and wider valleys.

Yet, again, we find bleak, water-sodden moors, with sedgy-margined lakes—the home of the dunlin and the golden plover, and haunted by the weird shriek of the rain-bird or red-throated diver (*Colymbus septentrionalis*)

Festuca orata, Triticum actitum, Lolium perenne. Of all these plants and grasses the following are found on Eilean Garbh :—Cochlearia domica, Armeria maritima, Rumex (spec. ?) Alriplex hastata, Plantago maritima, and a thin maritime grass.

—but these are mostly confined to the south-west of our western district, and to the bleak upland moors of Durness and Cape Wrath, in which latter district they roll along with vast wavy undulations, like a heather-clad prairie, reminding one of an Arctic tundra more than any other part of Scotland we can recall to memory.

The marvellously broken and sinuous nature of the whole western land, and markedly of Assynt and Edderachyllis, affords many natural basins and resting-places for sheets of water of varying depths and areas.

Of inland valleys perhaps the most remarkable and the finest in aspect is the long narrow Glen Canisp, studded throughout its lower reaches with lovely smiling lakes and rivulets, but receding in darker grandeur towards the hills. The Pass of Stronchrubie and the approach to Loch Assynt by the base of the gigantic limestone cliffs, where the holly-fern and the wall rue flourish, and where great stems of ivy and holly find clinging room and roothold in its buttresses,—is also well worthy of the admiration of the traveller. The great pass also by the lakes of the Reay Forest, between the head waters of Loch Shin and the mouth of the Laxford, is wild and grand in the extreme. Nor can we omit mention of the "Melancholy Strath of Dionard," ten long dark-shadowed miles of valley between the shooting-lodge of Gualinn and the Kyle of Durness. As we first witnessed this dreary valley, with the snake-like course of its native stream—the Dionard or Grudie—we could not recall a weirder, wilder scene in Scotland, not even if we remember the great moor of Rannoch in Perthshire, or the interminable moors of the eastern division of the county.

Inland Lochs and Rivers.

The parish of Assynt alone is said to hold over 300 lochs of various sizes. Edderachyllis is not far behind, but Durness is not quite so honeycombed. These gems, set in the dark moorland or high on the shoulder of one of the monarchs of mountains, glisten and dance in the

joy of summer sunshine, or fade and gleam more darkly in the winter rain and snow-drift. The variety of lovely scenery which is presented by the ever-shifting panorama of light and shade on mountain, mere, and river, during a drive on a fine day through Assynt and Edderachyllis, can scarcely be excelled by anything in Scotland. Perhaps one of the very loveliest of the smaller lakes is Loch Beannoch, near Loch Inver, but there are many that rival it in beauty. With the scarred and torrent-torn sides and towering form of Quinaig throughout its whole western range for a background, with a middle distance of lesser heights and tarn-held hollows, and the foreground Loch Beannoch, with its birch-clad, heron-inhabited islets and shore, with a rich-tinted gleam of western sunlight purpling the heights and reddening the debris slopes, and casting into shade the nearer outlines, one can scarcely imagine a more fairy-like scene. Or, if we choose the wilder beauties of Loch Assynt,—surrounded by ramparts of hills, and backed by the vast forms of the Assynt mountains,—its edges but partially clad in birch-wood, and its immediate shores precipitous and rocky, let us view it both in its quieter loveliness, and, best, in the wild grandeur of a storm, when masses of dark cloud roll rapidly across the stern outlines of the hills, and the unearthly shriek of the red-throated diver sounds like the last call of a drowning child.

Some of these lochs are margined by granite slopes and fed by springs of purest water, such as those on the higher ramparts of Ben More, and the great corries of Glasbhein and Ben Uidhe. These teem with the lower forms of life. Others at lower elevations are fed by the limestone burns, and these are full of crustacea, and yet others are fed by peaty, soft-tasted water, growing the yellow water-lily in abundance, covered with vegetable life, and rich also in water-insects and zoological stores of wealth. By far the larger proportion of these lochs is inhabited by trout, some by salmon and sea-trout in season, and others by char, but a few are or have been originally destitute of piscine life. Had we space we could dilate upon some

of the extraordinary peculiarities of the inhabitants of certain others.

Many of these lovely sheets of water are studded over with birch-clad islets, under the branches of which flourish the giant fronds of the great royal fern (*Osmunda regalis*). Other islets are heather-clad, a few grassy, and all are sown or planted by nature's own hand only.

Nor is life absent here in the bright summer-time. The sweet plaintive song of the willow-warbler, the startling cry of the common sandpiper, the trill of the dunlin, the "Teoch-vingh" of the greenshank—from which this last species gets its Gaelic name—or the wail of the curlew, and the discontented chatter of the gulls, are ever constant to the ear. The heron builds her unshapely nest on birch-trees, only a few feet from the ground, and the hooded crow flies silently on predatory quest intent, whilst close to shore, off some green island in the centre, swims a black-throated diver, occasionally uttering his hoarse and gutteral greeting to his mate, as she sits on her two dark olive eggs, only a few feet from the water's edge.

Principal amongst the lochs of Assynt and the west of Scotland for their beauty are Assynt; for its grandeur Beannoch, near Loch Inver; and Loch Awe, near Inchnadamph, for quiet loveliness and loneliness; Loch Cama, near Aultnagealgach, for its grand background of hill and mountain, and its wood-clad islands; and Loch Urigill, also near Aultnagealgach, for the bleakness of its surroundings, and of the Cromalt Hills, and its own vividly-green contrasts and innumerable water-fowl. There are many others, too numerous to name, but we must not omit mention of Loch Shin, a desolate and dreary expanse, narrow and ditch-like, but rich in piscine treasure; and Loch More, Loch Stack, Loch Merkland, and Loch Griam, all lovely in their own peculiarities of outline, foreground, and distance. High amongst the hills around Goberneasgach, in the Duke of Westminster's deer-forest, are some curious nooks and corners, and peculiar lakes, holding some strange varieties of trout. At Durness there are others, such as

Loch Maedie, in the centre of a peat moor, giving birth to the Smoo Burn, which falls into the roof of the wondrous Smoo Cave, in the limestone of Durness ; Loch Crassapuil, close to the Manse of Durness, with its bright clear sand, and vivid green water, and silvery-sided trout most closely approaching *Salmo levenensis*. Also Loch Borralaigh, with its char and subterranean outlet communicating with Loch Crassapuil below, and hundreds of others, scarcely one of which is not worth some passing notice, which, however, our space forbids us to attempt. Yet we cannot pass by the strange little pools which perch high on the shoulder of Ben Hope, holding in their clear depths innumerable char of goodly size, nor can we omit to mention the drearier beauties of Loch Laoghal, Loch Slam and Craggie near Durness, or of the many other lochlets which nestle near the base of Ben Laoghal.

Of the West Sutherland rivers our choice is the Inver. Wild and rugged, and headlong in its frantic efforts to reach the sea at Loch Inver, throughout its lower reaches, in its upper portions it is calm and smooth, and wide and deep, expanding into little lochs and great ranges of salmon-spawning beds. It is fringed with birch, spruce, and fir —a lovely, wooded ravine—in its lower reaches ; but in its upper, save at the spot where it leaves Loch Assynt, is almost treeless. Thus it offers the finest combination of scenery of any river in the county. Next in loveliness is Kirkaig, if not indeed in its own forte outvieing the Inver. Its magnificent waterfall, 68 feet in height, and the dark romantic pool below, its rugged, narrow, and tortuous course, and its uniformly-wooded sides, make it almost if not quite the equal in beauty of its sister stream. Then comes the Laxford, by its name suggestive of great and goodly store of salmon ; and then the melancholy Strath of Dionard, near Durness. Savagely wild is the Dionard or Grudie in its upper reaches and at shingly-shored Loch Dionard ; melancholy, dreary, and weird, throughout the last 10 miles of its course, before it falls into the Kyle of Durness.

Of many minor streams we could recount their beauties

and sing their praises, such as those of Trailigill and Loanan, and the marvellous cold-stream burn or Ault-na-oul, in the limestone of Assynt, or the wild tumbling burns of Glens Dhu and Coul—two glens, perhaps without their equal in scenic effect.

Sea-Lochs and Shore-lines, Headlands and Stacks.

Scarcely less in importance are the innumerable and far-reaching sea-lochs, commencing in the south-west with Loch Kirkaig and Loch Inver, the long arms of Glen Dhu and Glen Coul, and including amongst their number, between those and Cape Wrath, Scourie Bay, Lochs Laxford and Inchard, and the sandy Loch Sandwood, all united by a wild and rugged coast-line, save at little isolated spots, where vegetation struggles hard to gain a foothold in the crofts of the inhabitants, or at others where bits of sandy soil intervene, forming smiling little coves and nooks, sunny warm spots in the midst of the gaunt precipices and rock-bound shores. The grandeur of the coast culminates in the Island of Handa, of which we will speak later, and in the grand cliffs and stacks and headlands between Cape Wrath and Durness. Nor must we forget to mention the peculiar stacks or isolated pillars of rock of the "Old Man of Stoir," and that of the Buachaille or Shepherd near the entrance to Loch Sandwood, besides others we will speak of at Handa, and on the north coast, whilst treating of the islands off the coast.

Sea Islands.

Intimately associated with these deep sea indentations and the rugged coast-line are the innumerable islands and groups of islands which stud the whole western seaboard, principal amongst which are the islands off Loch Inver, the Badcall Islands off Cairnbawn Loch (which at its head separates into the wild recesses of Lochs Dhu and Coul), and Handa, the stupendous cliffs of which, reaching 620 feet in altitude, give shelter to the countless sea-fowl which throng its step-and-stair-like ledges "at the height of the season," and which, also, for many years,

held the eyries of the white-tailed eagle and peregrine falcon. To the northward are more islands off Loch Inchard; and Bulgie Island, famous for the booming sound of the great Atlantic waves which dash wildly into the half-submerged cavern on its north-west side, and which is heard miles out at sea by sailors on board the passing ships. Along the north coast are several islands, of which, perhaps, the most remarkable is the Island of Garbh, or the rough island, so named from the extremely hard nature of its limestone rock, and the excrescences or nodules of still harder lime fossils of crustaceae, which, having resisted the action of air and water, jut out hard and unyielding from the almost equally impervious matrix. This island alone is well worth a visit, both by the botanist and the collector of fossil crustacea. Near Tongue, and off the entrance to the Kyle of Tongue, are Rhon Island and Rabbit Island, the former frequented by seals (*Phoca vitulina*), and the latter swarming with rabbits, and visited daily by eagles and other birds of prey which delight in rabbit flesh. Most of these islands are frequented by various sea-fowl, eider ducks on the north coast, in small numbers, and gulls and terns, puffins and rock-birds; but in this respect Handa near Scourie stands pre-eminent, and is deserving of a few remarks apart from the rest.

Handa can most easily be visited from Scourie Bay, or, if the wind is too strong or unfavourable, by walking three miles to Tarbert, and there hiring a boat across the narrow sound which separates Handa from the mainland. There are many good sailors at Scourie and Tarbert, but the two who, perhaps, most fully fulfil the wants of a stranger by combining seamanship, fisher-lore, and cliff-climbing, are the two brothers Donald and Peter Mathieson. Any one going to Handa should be amply provided with sea-fishing gear, because, round its cliff-base and along shore, some of the finest sea-fishing can be had. We have assisted at the taking of $2\frac{1}{2}$ cwts. of lythe and coal-fish during a few hours, out from Scourie, at 5 P.M. and back at 8 or 9; and, in a single tide, a little farther to the

south, we have helped in taking over 600 lbs. of cod into one boat. When visiting Handa do not omit a judicious dram for the men, and if belonging to the army of the blue ribbon, some other substitute for oneself, as Handa is not famed for the quality of its water.

Handa is a mile, more or less, in diameter, and nearly circular; slopes gradually towards the east or shoreward side, and where it is laved by the wavelets of the sheltered sound is interrupted by upright veins of trap, which form lovely little sandy coves for landing-places. A gradual slope leads upwards and westwards to the cliff edges, covered for a considerable space with short grass growing on sand, and producing sweet sheep-grazing and mushrooms. The cliff face occupies fully three-fourths of the circumference, low at the south and north-east; and, rising boldly and rapidly towards the west, culminates in a magnificent precipice of 620 feet in height. The sandy coves and trap dikes occupy the other fourth part of its coast-line. A flock of sheep is kept on the island, the grazing of which belongs to Mr. M'Iver, the Duke of Sutherland's factor at Scourie, and he used not infrequently to lose some of them, which, falling over the cliffs, were dashed to pieces on the rocks below, or drowned in the sea.

On the north side of Handa is a remarkable stack of rock, inaccessible, with flattish or sloping top, populated by a colony of great black-backed gulls, razorbills, guillemots, etc. Opposite is a deep scar or gyö in the cliff face, down which a man can easily descend, populated by a large colony of puffins which nestle amidst the grass slopes and loose masses of stones and debris. To the west of this is a projecting peninsula of cliff, over which, in certain winds, streams of rock-birds hurry up to their nesting-places on the stack. Farther west the cliff rises rapidly in altitude, till, facing west, it reaches 620 feet in height. There the peregrine falcon breeds, and, till of late years, the white-tailed or sea eagle reared her young. This is one of the grandest cliffs in Britain; though hardly, perhaps, comparing in height with Foula in Shetland,

Mingalay in the Hebrides, or St. Kilda, it comes little short of these in grandeur.

A little to the south of the culminating point of Handa, where the cliff dips suddenly to about 450 feet of elevation, there is a vast *creux* or pit, about 40 × 50 feet in surface area, being nearly perfectly square, unfenced when we last saw it, and penetrating perpendicularly the solid rock down to the sea-level, where it is connected with a deep inlet of the Western Ocean by an equilateral-sided tunnel. This curious place is haunted by kittiwakes, especially in stormy weather, but, save in the tunnel-way where a few shags have their nests, is not used as a breeding station. We know of no creux to equal this in magnitude or grandeur, not comparing with it for one moment those of the Channel Islands, nor the Bullers of Buchan on the Aberdeenshire coast. Almost throughout the whole circumference of Handa—at least in its cliff faces—the wonderful regularity of its parallel ledges is remarkable; and its innumerable crevices are crammed with razorbills, guillemots, puffins, kittiwakes, and shags, whilst a few cormorants occupy the highest ledges just under the cliff-edge, and rock-doves are occasionally seen to dash out of the caves over the sea; rock-pipits and starlings are abundant in the crannies and sea-pink tufts of the cliffs. It is quite one of the most remarkable bird-nurseries of Great Britain.

The Badcall Islands are well worth a visit. Colonies of cormorants, sea-gulls, and black guillemots occupy the suitable positions. We have taken twenty to thirty eggs of the latter species during a short visit.

We have visited Handa and Badcall many times, Bulgie Island, and Garbh Island, and other islands off the coast, but none will compare in interest with Handa, and all visitors to Sutherland should make a point of including Handa in the programme of their tour.

Plantations and Cultivated Areas.

The cultivated areas are few and far between, and for the most part insignificant. After leaving the vicinity of

Rosehall and the Kyle of Sutherland, a few crofters' patches occur at the mouth of the Cassley river, but thereafter only a patch or two at Oykel and Aultnagealgach, at Inchnadamph, and at each of the more inland situations where the traveller can rest or tarry. Around the villages of Knockan and Elphin, in the south-west of the county, and along one shore of Cama loch, the crofters have some more land under cultivation, and here the common bunting breeds in small numbers, though rarer elsewhere in Assynt. Along the shore-line of Ardvar and Stoir, at Kirkaig Bay, and around Loch Inver, patches of potato land, in the usual "lazy-bed" form of cultivation, are numerous, dotted about amongst the rocky ground often close to the sea-shore, or in larger masses in the hollows more inland. A somewhat larger extent of cultivated land lies towards the Point and Lighthouse of Stoir. Around Scourie are some neatly tended croft-lands, growing good hay and potatoes, and at Durness and Tongue considerable extent of grass-lands and crops. All these, limited though they are in extent, have a decided influence upon the flora, and consequently on the insect and bird life, and it is interesting to note that for many years the few acres of cultivated land at Inchnadamph produced regularly a covey of partridges, until finally they disappeared after the severe winters of 1878-79 and 1880-1.

In the same way, trees are not abundant in the west of the county. After leaving the extensive pine-woods of Rosehall and the wooded valleys of the Shin and Cassley, the traveller skirts the river Oykel for some distance, passing through some old birch-wood on either side of the road, where bog-myrtle grows in large quantities beneath, or in the more open spaces. A few oaks occur also along this route. But all wood ceases as one leaves the valley of the Oykel beyond Oykel Bridge, whose banks are skirted by a line of stunted alder. Thereafter it is only in sheltered nooks of water-worn ravines or in the crevices of rocks that perhaps a few mountain-ash or straggling ivy find a foothold. The

lovely valley of the Ænag river, however, retains a well-wooded character for a considerable distance up the glen. A dreary, often misty drive, over the great moor which stretches over the watershed between Oykel Bridge and Aultnagealgach, and then descends rapidly towards Loch Assynt, brings us again to a few patches of wood at Inchnadamph, which have been planted round the farmhouse of Stronchrubie, the manse, and the hotel of Inchnadamph ; whilst amongst the deep crevices of the noble limestone cliffs of Stronchrubie, some fine natural holly and thick-stemmed ivy give shelter to the ring-ouzel, whose notes come clear and distinct on the traveller's ear as he passes along the road below. Then come the more thickly wooded slopes and knolls, and heights and hollows of the birch-woods of Assynt, the lovely birch-clad shores of Loch Letteressee, and Assynt shooting-lodge, and the wooded valleys of Inver and Kirkaig, where spruce and pine have been added to the natural wood and to the beauties of glen and hillside.

Scattered amongst the sinuous hills of lower elevation throughout the Stoir peninsula are a few very lovely bits of scenery, influenced by perspectives of hill and hollow, lake and birch-wood, and specially amongst those we would take note of the Lochs of Beannoch—already spoken of—and those of Drumbeg in the north of Stoir, and the hollows and lakes close to the road, only a short mile or two, to the north of Loch Inver. North of Scourie scarcely a tree is to be seen, save on a few islands of the lochs, but between Loch Inver and Scourie there are many lovely lochs, covered with water-lilies, and their shores and islets clad with birch and royal fern. Inland, at Loch More shooting-lodge, there is a luxuriant shrubbery of rhododendron, and the steep side of Ben Stack is clothed in birch to a considerable height. At Durness scarcely a tree is to be seen, but at Tongue there are fine plantations of larch and fir around Tongue House, and here one of the finest old wych-elms in Scotland grows on the lawn. The very temperate nature of the climate of Tongue, snow rarely lying there for any length of time,

exercises its influence on plant and animal life alike. At Altnaharrow, on the road between Lairg and Tongue, is a small clump of spruce and larch, and it is wonderful how the bird-life is at once observed to be associated with this oasis, and the yellow hammer, chaffinch, and robin, the wren and the hedge-sparrow reappear at this isolated station. At Loch Hope Lodge, also, there is considerable amenity of woodland, and before long the strips of young wood lately planted on the improved land bordering Loch Shin will not only give shelter to the cropped lands but also to innumerable birds and insects. At Goberneasgach and in Glen Golly is a considerable slope clad in birch-wood, in the very centre of a vast stretch of barren deer-forest, also exerting its influence in a marked degree upon the fauna.

The Faunal Position of Sutherland.

Scotland has been divided by Dr. Buchanan-White of Perth into ten defined floral and faunal areas. These are named, commencing in the south—Solway, Tweed, Clyde, Forth, Tay, Argyle, Dee, Moray, West Ross, and Sutherland. We exclude here the Orkney and Shetland Isles and the Outer Hebrides. These faunal areas are separated by the natural watersheds, and are perhaps more consistent in their peculiarities from a floral than from a faunal point of view. It is not our intention at present to insist upon the importance of these, or of the position occupied by the area under our consideration from the latter point of view, except in so far that we believe, with the majority of naturalists, that natural divisions cannot be quite so arbitrary as geographical or artificial ones ; and we consider it desirable to indicate, as shortly as possible, with which of these ten areas Sutherland claims to have connection.

The great dividing range of mountains which forms the backbone of the county stretches northward from the southern boundary to the Reay Forest, and then turns eastward by Ben Hee, including all the head waters of

the rivers which run westward, as far as Ben Stack and Cape Wrath, and those of the rivers which run northward between Cape Wrath and the eastern confines of the county, and separating both of these from the head waters of the rivers which run into the Moray Firth. We now propose to follow this dividing line with somewhat more minuteness of detail.

The watershed between the head waters of the Kirkaig river and the Valley of the Oykel is situated between Loch Ellag and the county march at Aultnagealgach; proceeding northward it runs along the sky-line of Braebag and skirts the ridges and corries of Coinnebheal, being very boldly defined, especially at the pass between Braebag and Ben More, and again at the pass over the shoulder of Ben Chaoran. Thence along the sky-line to Meall-a-chuail, overlooking Loch Griam, and across the high road between Lochs Merkland and More, it mounts the shoulder of Ben Hee, turning abruptly from a hitherto northerly course to one almost south-east. Up to this turning point it had separated the water systems of Moray in the east from West Ross, but if we follow it now in its eastward progress we find that it separates the water-systems of Moray and Sutherland, or the rivers which run south to the Moray Firth, from those which run north to the Pentland Firth. Before following this line, however, we will notice the spur which separates the water systems of West Ross and Sutherland. From a point on the forest road which leads close past Ben Hee towards Goberneasgach shooting-lodge a sinuous sky-line passes among the great hills of the Reay Forest, skirting the summit range of Sabhal Bheag and Sabhal Mohr, and then keeping down the left of the Dionard Valley crosses the high-road near Guallin shooting-lodge, close to Lochan Tarbhach More, and thence pursues an almost direct and straight line to Cape Wrath, its elevation gradually lessening after passing the summit ridge of Craig Riabhach (1590 feet), until at Cape Wrath it passes out at the cliff edge at an elevation of only 370 feet.

The south-easterly course of the watershed separating the

"Moray" and "Sutherland" faunal areas continues in a somewhat irregular line towards the Crask Inn, on the high-road between Lairg and Altnaharrow. Thence it follows the sky-line or higher ridges of Ben Armine, turning northwards between Lochs-na-Choir and Badenloch, near the sources of the river Helmsdale. Then its course is again easterly by Ben Rossal and Ben Vadda to the Highland Railway at Forsinard and the Caithness March.

We have said that we do not intend at present to insist upon the faunal importance of these three areas of which the county of Sutherland claims a share; but as these watersheds do occur frequently at high elevations; and as climatic change, temperature and soil are in no small degree co-existent; and as geological considerations cannot be overlooked, especially in the west and north-west, as a glance at a geological map will at once show; and as we know that faunal characteristics in many other countries, as well as floral, are in a great measure dependent upon these, and upon one another, we desire to indicate the part which our subject county bears in its natural as well as its artificial divisions and boundaries. Many indications of the importance and influence of these natural divisions are already within our grasp, but none, perhaps, of sufficient importance to warrant our occupying more space than we have done in this place.

Sutherland is, therefore, composed of portions of three faunal areas:—1st, West Ross, which includes Skye and a part of Inverness, and which is marched on the south by Argyle, and on the east by the backbone of mountains which extends down the west side of Scotland; 2d, Sutherland, which, in its entirety includes Caithness, and whose rivers run northward to the Atlantic Ocean; and 3d, Moray, a vast faunal tract, whose basin is the Moray Firth and whose catchment includes one-third part of our subject county, and the larger portion of Inverness-shire and Nairn, Elgin and Banff, which is bounded on the south by the faunal areas of Argyle, Tay, and Dee, and on the east by Dee.

MAMMALIA.

Having thus endeavoured to describe the geographical position and areas, and the physical aspects of the county, and having also ascribed to it its faunal position in relation to the other faunal areas of Scotland, we proceed to speak of the vertebrate fauna, and, as is customary, besides being in accordance with natural position, we commence this portion with the Mammalia.

The oft-quoted passage in Sir Robert Gordon's *Earldom of Sutherland* (1630), must, we fear, do duty again, as being about the earliest—and also almost the latest—record of two pre-existing species of Mammalia. Sir Robert Gordon's list contains "Reid Deir and Roes, Woulffs, Foxes, Wyld Catts, Brocks, Skuyrells, Whitretts, Weasels, Otters, Martrixes, Hares, and Foumarts."

According to tradition, wolves were at one time so abundant in Sutherland that the natives of the west coast buried all their dead on the Island of Handa, to avoid the disinterment by wolves (*Voyage round Scotland*, p. 347). Mr. Scrope instances accounts of four old wolves and several whelps which were all killed about the same time, but in different places, between the years 1690 and 1700. The localities named are Achumore, in Assynt, Halladale, and Glen Loth, the latter being the locality of the veritable "last wolf" of the county. "These," says Mr. Scrope, "were the last wolves killed in Sutherlandshire, and the den was between Craig Vhodich and Craig Voakie, by the narrow glen of Loth."—(*Days of Deer-Stalking*, pp. 374-7.)

In 1621 we have record of the wolf in Sutherland. The following is from a MS. Account-Book of Sir Robert Gordon, Factor of Sutherland :—

> *Item.*—Sex poundis threttein shillings four pennies given this yeeir (1621) to Thomas Gordoun for the killing of one wolff, and that according to the Acts of the countrey.

And we find an earlier record still, as follows :—The Rev. Dr. J. M. Joass, to whom we are indebted for several curious items of information, says—"I find in a facsimile copy of a map of Great Britain from the Bodleian Library, and supposed to have been made by Edward II. when Prince of Wales,[1] that Sutherland has the figure of a wolf on the top of a mountain, with the legend—'Hic abundant lupi.'"

We have evidence of the occurrence, in prehistoric times, of the reindeer (*Cervus tarandus*) and the beaver (*Castor fiber*), remains of which have been found in different parts of Caithness and Sutherland. A number of bones, some showing the palmation by which the reindeer was identified, were found

[1] Circa A.D. 1280?—*J. A. H.-B.*

whilst Mr. Houstoun of Kintradwell and others were engaged in digging out the remains of the old tower there. Many of these were broken in fragments, showing the appreciation which the natives of the rude Stone Age had for the marrow.

Of other extinct animals we have traces of the wild boar (*Sus serofa*), in Gaelic traditions which still survive, and have given names to various localities in the county, such as Aultnatore—"The Burn of the Boar"—near Ben Loyal, where Dermid was slain by the revenge of Fingal for seducing the latter's wife (*Songs of the Bards*). According to Boyd Dawkins, the wild boar was extinct in Britain "before the reign of Charles I."—(*Cave Hunting*, p. 76.)

EXISTENT MAMMALS.

Common Bat—*Vesperugo pipistrellus* (Geoffroy).

Not so rare as formerly supposed, and indeed has probably increased since the last account was written.—Alston, *Proc. Nat. Hist. Soc. Glasgow.*

Mole—*Talpa europœa L.*

Still on the increase in Sutherland. In 1843 it was rare in Durness, and, according to Alston, only found on the western slope of Ben Hope. Abundant in Assynt, less so in Edderachyllis, where the ground is rockier and there are fewer low-lying pastures. In some parts their existence for a number of years is evidenced by the old turf-covered mole-hills. In the east regular mole-trappers are employed to keep down these so-called pests.

Obs. The Hedgehog—*Erinaceus europœus L.*

Is still unknown in the west, and, so far as known to us, in all other parts of the county. Though pet specimens have been introduced, and have escaped, there is no evidence that they have established themselves in a wild state.

Common Shrew—*Sorex vulgaris L.*

Common.

Water Shrew—*Crossopus fodiens* (Pallas).

Is not rare, but its retiring habits render its numbers difficult to ascertain. Extends to Caithness. It frequents the limestone burns and rivers of Assynt, and we have seen one obtained on the Inver river in 1883. In Mr. Alston's paper on "The Mammals of Sutherland," it is stated that the dark variety, formerly separated as *C. remifer*, does not appear to be found within the county, although common in many parts of Scotland. The one we saw in 1883 belonged to the dark variety, the dark colour passing entirely over the under side. Mr. Houstoun writes from Kintradwell "I have twice seen the Water Shrew in life—the first time both in the water and on land, and the second time on dry land—and have, on three separate occasions, got dead specimens, evidently dropped by a cat, but perfect and intact."

Badger—*Meles taxus* (Schreber).

Still found, but in decreasing numbers and in more restricted areas. Previous to 1867 no vermin were killed in the Reay Forest, but after 1872

premiums were paid by Mr. M'Iver, the factor. The Badger's name is quite absent from lists of vermin killed in Assynt and Durness between 1870 and 1879, also from Reay Forest lists between 1866 and 1880, and from the Assynt lists. One only is included in the Dunrobin list between 1873 and 1880. We know of no part of Sutherland where it can be called abundant, but the absence of its name in all cases must not be held as invariably indicative of its absence in the flesh, as in some parts, very wisely, no premiums are paid for Badgers. At one time the "Brocair" or Badger-hunter, was a well-known man. Now he is never heard of, and is replaced in person and in name by the Fox-hunter. Supposed to be extinct, or nearly so, in the Tongue district, none having been heard of during the last seventeen years, and only two seen by Mr. Crawford during twenty-five years.

Otter—*Lutra vulgaris* (Erxleben).

Still not uncommon, though a persecuted species. In 1831 to 1834 premiums were paid for 263 killed on the Sutherland estates alone. In Assynt and Durness only three are included between 1870 and 1879. None between 1866 and 1880 on Glen Dhu Farm or Reay Forest; but in Assynt, on Mr. Whitbread's shootings, twelve were killed by one trapper between 1869 and 1880. We have no records of Otters amongst vermin lists from Dunrobin; but records of Otters killed do not perhaps distinctly point out their distribution or comparative abundance in different districts, for we know they yet frequent the Brora river and Lothbeg burn; near the latter place, indeed, one was caught by rabbit-trappers on the Crakaig farm at the beginning of this year, and we ourselves saw a fine one in Loch Brora on the 21st of February last.

Polecat or Foumart—*Mustela putorius L.*

The same causes which have decreased the numbers of the marten have operated in the case of the Polecat. Rabbit-trapping has proved fatal to it; for whilst the increase of rabbits has provided it with abundance of food, it has been the indirect means of causing its decrease (by the agency of steel traps). Inland localities, formerly occupied by Polecats, have been deserted by them, for they, drawing down towards the sandy barrens to prey upon the rabbits, themselves became an easy prey. Careful inquiries have elicited the fact that a few Polecats still remain at certain sea-shore localities, but only now, where rabbits do *not* abound and are *not* systematically trapped. An occasional one is still obtained in the Tongue district, but the species is decidedly rare there.

Stoat or Ermine—*Mustela erminea L.*

Very plentiful, and has even been seen on the summits of the highest mountains.[1]

Notwithstanding the war of extermination being constantly carried on, it is steadily on the increase, and this is very probably co-existent with the increase of rabbits. This, at least, was the case in 1880. Not abundant in the Tongue district.

Common Weasel—*Mustela vulgaris L.*

Not so abundant as the last, and not, so far as is known, ascending the hills to any great altitude, preferring the proximity of houses, farm-yards, etc.

Marten—*Martes abietum* (Fleming).

The Marten appears now to be of rarer occurrence throughout Scotland than the wild-cat, being extinct in many places still frequented by the

[1] Mr. Omond records the appearance of a Stoat in the depth of winter of 1883-84 on the summit of Ben Nevis.

latter species, but, curiously enough, has survived over a larger area up to a later date; that is to say that while the boundaries of the country at present inhabited by the wild-cat are easily defined, and are gradually contracting, the occurrences of the Marten are more sporadic, often turning up in localities far distant from one another, where no records had previously occurred for many years. The Marten being extremely unsuspicious of a baited trap, falls an easy prey to the professional vermin-killer. In Assynt it is now very rare, but in 1876, in the Reay Forest, one keeper had fifteen skins awaiting the annual arrival of the furrier's traveller. Two were got at Guallin in 1882, but they are very scarce there, though possibly less so than elsewhere in the county. In the east of the county they have not been known for many years, and are almost, if not quite, extinct in the Tongue district.

Wild-Cat—*Felis catus L.*

Becoming extremely rare in Assynt during the last decade, but it is still not uncommon in the Reay Forest, where it is preserved by the Duke of Westminster. One very large one was killed in Assynt in 1881. Between March 1831 and March 1834, as recorded by Selby, 901 Wild-Cats, martens, and foumarts were destroyed. According to a list of vermin killed on Dunrobin grounds, house cats and Wild-Cats are distinguished, and six is the number of the latter killed between 1873 and 1880. One keeper in Assynt killed no less than twenty-six Wild-Cats between 1869 and 1880, but of these only three during the last six years. Another keeper killed ten between 1870 and 1873, but no more until the winter of 1879-80, when he killed four, one of which is described as a monster. These notes very clearly indicate the process of extermination, and we have many other lists which show the same process of decline. In the east of the county, though not yet extinct, it is also very rare, though we hear of one being caught occasionally; and it is still found, though rarely, in the Tongue district.

Fox—*Vulpes vulgaris* (Fleming).

Very plentiful, a pretty regular crop appearing every year, and affording no mean addition—in the form of premiums—to the gamekeepers' salaries, besides employing regular Fox-hunters. £1 is given for an old dog, £2 for a vixen, and 10s. each for cubs. Between 1831 and 1834 premiums were paid for 239 Foxes on the Sutherland estates. In Assynt and Durness for 156 between 1870 and 1879. In the Reay Forest and Glen Dhu 145 between 1866 and 1880 by one return, and by another hand, in the Reay Forest between 1873 and 1879, 164; or, in all, from Reay Forest and Glen Dhu in that time, 309. In Assynt, on Mr. Whitbread's shooting, by one keeper alone, no less than 53 between 1869 and 1880. Between 1866 and 1869, 340 were killed. On Dunrobin 60 Foxes were killed between 1873 and 1880. In Assynt also, on another beat, another man got 11 Foxes between May 1879 and May 1880. Still very abundant in the East, and at normal numbers around Tongue, neither increase nor decrease being observable.

Common Seal—*Phoca Vitulina L.*

Not uncommon at some localities, especially in the firths of the north coast, and occurring all along the coasts in the west. Another resort on the east coast is a sandbank at the entrance of the Dornoch Firth, visible from the town of Tain. Here they used to lie in large numbers, though lately a good many have been killed with punt guns, one man killing three and wounding two with one shot: these latter were afterwards found. Another resort is the Little Ferry, where they come in and out with the tide.

Gray Seal—*Halichœrus gryphus* (Fabricius).

Fairly common along the east coast, especially where there are any

rocks jutting into the sea suitable for them to lie on. One such place is Lothbeg Point, where Mr. Houstoun of Kintradwell has shot many, the small Firth Seal being the rarer here. They blockade the mouth of the Brora, levying black mail on the migrating salmouidæ.

They also occur in some numbers on Eilean-nan-Roan—off the Kyle of Tongue—where specimens have been seen over 8 feet long. They are most numerous on the outer island. At Souliskeir—to the north of Cape Wrath—they were once abundant, and parties of fishermen used to go from Orkney and from the north Sutherland coast to kill them in October. These raids have ceased in the last fifteen or twenty years, as we are informed by Mr. J. Crawford.

Harp Seal—*Phoca grælandica* (Fabricius).

Mr. Houstoun tells us he has killed a specimen of this Seal at Kintradwell; we saw portions of its skin after it had been preserved and cut up. This was probably previous to 1870. Mr. Houstoun is an experienced seal-shooter, but it is a pity that such a valuable and interesting addition to the British Marine Mammalia should not have been more carefully preserved. Personally, we feel certain that the Harp Seal has occurred several times in Scotland, and have ourselves shot one in the Hebrides, which was, however, lost to us, and we have evidence of others having occurred. Unfortuuately, however, none have been preserved.

Cetaceae.—Our actual knowledge of the species which frequent or have occasionally visited the Sutherland coasts is still very defective, owing to the difficulties attendant on the pursuit of knowledge in this direction. We have little to add to the last published list of the Cetacean Mammalia, by Mr. E. R. Alston.

The Porpoise—*Phocæna communis* (F. Cuvier).

Visits the coasts.

The Pilot Whale—*Globicephalus melas* (Trail).

Also is found on the coasts, and there is one in the Dunrobin Museum.

One was stranded on the Melness side of the Kyle of Tongue about five years ago. It measured 15 feet in length. This was about midsummer.

The White Whale or Beluga—*Delphinapterus leucas* (Dall).

In 1880 a specimen of this species was repeatedly seen in the Kyle of Tongue in August, as reported to us by Mr. J. Crawford of Tongue House, and there are other records of its occurrence on the north coast of Caithness (cf. Bell, *British Quadrupeds*, 2d ed., pp. 381-474). A specimen was obtaiued at the Little Ferry on the 9th of June 1879, having got entangled in the gearing of the salmou stake-nets (*P. Z. S.*, 1879, pp. 667-9). It is now stuffed and in the Dunrobin Museum, and another has been captured on the Caithness coast since this Fauna went to press (June 1884).

The Sperm Whale—*Physeter macrocephalus L.*

Though not to our knowledge actually captured or authentically recorded on the coast of this county, has occurred on the Caithness coast (cf. Bell, *British Quadrupeds, op. cit.*, p. 418).

Squirrel—*Sciurus vulgaris L.*

Once present in Sutherland (cf. Sir R. Gordon's *Earldom of Sutherland to the year* 1630, where it is included in a list of animals found in the county), and became extinct. The latest record we have of the Squirrel occurring anywhere in the north of Scotland which could possibly have belonged to the aboriginal stock, dates 1792 (*Old Stat. Account of Scotland* (1792), vol. iii. p. 514), which record is repeated *word for word* in the *New Stat. Account*, dating 1842. It most probably became extinct after or during the severe winter of 1795, and the subsequent record was merely a statement not brought up to date. As regards its reappearance we quote directly from Harvie-Brown's

essay on "The Squirrel in Scotland," as in that essay the subject, we believe, is pretty well thrashed out.

"The Squirrel reappeared in the county of Sutherland in 1859 at Clashmore, on the authority of Mr. Thos. Mackenzie (*vide Proc. Nat. Hist. Soc. Glasg.*, vol. iii. p. 229; also *Scottish Naturalist*, vol. i. p. 82), and he believes that the first Squirrels entered the county across Bonar Bridge. It was not, however, until after the railway bridge was built at Invershin, in 1869, that Squirrels became plentiful in the east of Sutherland." Since then they have increased largely, and are now firmly established again in the east of the county. From Dunrobin we have the following returns of Squirrels killed between 1873 and 1880, which admirably shows the rapidity with which the species increases. In 1873, 2 were killed; in 1875, 75; in 1876, 47; in 1877, 12; in 1878, 284; in 1879, 332; in 1880, 190; total in seven years, 942.

Wood Mouse—*Mus sylvaticus L.*

We have only once observed this species in a birch-wood on the side of Loch Shin, but Selby mentions it as common as long ago as 1834, and it is common in the east of the county.

House Mouse—*Mus musculus L.*

Common.

Brown Rat—*Mus decumanus* (Pallas).

Abundant, but for the most part confined to the coast districts, though occasionally found at some inland localities; abundant on many islands off the coast, but quite absent from others. Handa is infested with them, and there is evidence also of their presence on the Badcall Islands. We found no trace of them on Bulgie Island, nor on Garbh Island.

Black Rat—*M. rattus L.*

The only occurrence we are able to record is of a single specimen shot two miles west of Golspie in 1879, about a mile from the nearest houses, which would therefore be the seaport of the Ferry. Unfortunately, it was too far gone for preservation for the Museum. We have innumerable records of varying value of the Black Rat from many parts of Scotland, the above being the only one from Sutherland. As the black water-vole is *very common*, it can hardly have been confounded in this case, as the reporter is a particularly intelligent man.

Water Vole—*Arvicola amphibius L.*

Abundant both on the rapid clear limestone rivers of Assynt and the more sluggish streams. The black variety is, in our opinion, more abundant than the brown in the west, and is at least equally common in the east, where it haunts every burn, except those that are too rocky. This interesting species appears to thrive well amongst the rocky limestone formation, finding ready shelter in the innumerable cracks and passages through the rock, but we have not met with it in the very rocky burns of other formations. Mr. Ben. N. Peach observed it commonly in Durness—the black variety, which is also found in Caithness. They are common also in Strath Shinary, through which the river Shinary flows into Loch Sandwood. The common Vole is easily tamed, and makes a cleanly and interesting pet.

Common Field Vole—*Arvicola agrestis L.*

Common. We have seen it often in the limestone district, and occasionally in the caverns of the limestone rock, where we once came across a large store of food, which must have lasted past the winter months. The owner scuttled out from its midst near the back of the largest cave, narrowly escaping capture. Also common in the east of

the county. *Obs.* The Red Field Vole—*A. glareolus* has not been to our knowledge discovered in the county.

Mountain Hare—*Lepus variabilis* (Pallas).

The White Hare has been gradually decreasing in numbers for some years back. There are no hills in Assyut at all famous for the numbers of these creatures, but there is no doubt that they were much more plentiful only some sixteen or twenty years ago, and within our own recollection, than they are now. Persistent shooting has in some cases had to answer for this scarcity. At one time the two Bens Griam were plentifully supplied with hares, but some thousands having been killed off these hills alone some years back, the stock never recovered, and even now, when there is no systematic persecution, they are so rare that not more than two or three can be seen in a day's walk. Since the larger shootings were broken up in 1873, each lessee has, in most cases, allowed his keeper to kill hares in the winter, and as hares generally come down from the higher grounds at that time, far more were killed than belonged by rights to the ground; and as this has now been going on for more than two years, and during that time we have had two very severe seasons, it is no wonder that White Hares are getting scarce.

Common Hare—*Lepus timidus L.*

The Brown Hare, as it is called in the Highlands, is pretty plentiful in the east of the county, frequenting indifferently the cultivated land and the heather that borders it. When living in the latter place, it is supposed to cross with *L. variabilis*, and certainly we have seen hares that had every appearance of being such hybrids.

Said to have been common in the lower lands and the limestone ranges of Assynt in Selby's time. It is now extremely rare, if not extinct there. We have only seen two examples during seventeen years' knowledge of Assyut, and these both on the same day.

Rabbit—*Lepus cuniculus L.*

Common in the east. Scarce in the west, or at least very local. Common on Handa, where they were introduced about eighteen to twenty years ago. Fairly common about the north shore of Loch Inver; abounding on Rabbit Island (or Eilean-uan-Ghael, the Island of Strangers), at the entrance of the Kyle of Tongue, but temporarily decreased there since the severe winters of late years. Old "Robby Ross," an old residenter at Tongue, told Mr. Crawford that Rabbits were introduced to Eilean-nan-Ghael by Major M'Kay, brother to Lord Reay, about seventy years ago. We find this island, however, called "Rabbit Island" as early as 1792 in the *Old Stat. Acct. of the County*, vol. iii. p. 521. 700 were killed in the Tongue woods in 1880-1881. A single Rabbit was known to frequent stony broken ground at Far-out Head, near Durness, in 1881-1882. How did it come there? Over 12,500 are stated to have been killed in the county of Sutherland in the year 1880, but this return does not probably apply really to the whole county. Rabbits wander far up the straths on the east coast, and at one time there was a large colony near Loch Aricline, at the head of the Helmsdale Strath, which were nearly all killed by one severe winter.

Red-Deer—*Cervus elephus L.*

It is stated that 284 stags and 32 hinds were killed in 1880 in the county. How far these figures are correct I am unable to say.

The principal forests are Dirrie-Chatt or Dunrobin in the east, and Dirrie-More or Reay Forest in the west, besides, of later years, other afforested ground in Assynt. There is evidence that formerly very large heads occurred in Sutherland (*Lays of the Deer Forest*, vol. ii. p. 145), and the Dunrobin Museum contains a very fine head, with both

horns deeply cupped, and of great spread and thickness of beam. The Duke of Westminster at the present time is striving to improve the heads in the Reay Forest, and with singular and rare sportsmanship forbids the killing of the finer adult stags. A decided difference has already made itself manifest in the improvement of both body and antlers. No doubt these grand heads were commoner in the days when Sutherland was covered with oak and pine timber, remains of which are still visible in the peat mosses. But when it is believed that there is not at present a tree in Sutherland which numbers 100 years in age, we must go a long way back to localise them in time.

What the Duke of Westminster is doing to improve the stags in the west, the Duke of Sutherland is doing in the east, and, except one or two killed by himself or Lord Stafford, no good heads are allowed to be shot in Dunrobin, under a fine of £1 to the stalker who allows such to be done. At the present time Deer are spread throughout the whole county, from the north-east corner of the parish of Reay to the woods of Dornoch. It is worthy of reference here, what has been related of the great emigration of Deer out of the Reay country after the first "head" of sheep had been there introduced (v. *Lays of the Deer Forest*, vol. ii. p. 146).

Roe-deer—*Capreolus caprea* (Gray).

Common in all suitable localities, and increasing in number since planting became more general. The late severe winters put a check, however, on the increase, but they seem again to have in great measure recovered. Even in the isolated birch-woods of the interior of the county Roe are found, but they rarely increase, even when not killed, in such situations.

Fallow-deer—*Cervus dama L.*

Sheriff Mackenzie informs us that this species has, "for many years back, frequented the woods about Dornoch in a semi-wild state." Fallow-deer were introduced at Rosehall in the winter of 1876 or spring of 1877. Buckley was there at the time, and saw them turned out at midnight.

REPTILES AND AMPHIBIANS.

Common Lizard—*Zootica vivipara* (Jacquin).

"Not uncommon, especially on the moors between Aultnagealgach and Loch Urigill" (Alston and Harvie-Brown). Common almost everywhere in the east of the county.

Slow Worm—*Anguis fragilis L.*

Not uncommon in the west of the county, especially about Scourie and Edderachyllis. Often seen on the dry dusty roads in summer. Occurs frequently in Strath Brora.

Adder or Viper—*Pelias verus* (Linn.)

Abundant in most suitable localities; and more abundant, perhaps, than suspected, owing to its somewhat retiring habits. Common north to Cape Wrath, but rare in the limestone districts of Durness and Assynt. We certainly, in seventeen years' experience of Assynt, do not remember seeing more than two or three on the banks of the Inver and Kirkaig. Said to be abundant on Coul More and Coul Beg, and very abundant in a certain birch-wood on the banks of Loch Shin. Extremely abundant all through the east and centre of the county.

Frog—*Rana temporaria* (Linn.)

Very common, ascending to considerable elevations, and fond of clear stony streams coming off the granite or mica. Appareutly rarer in the limestone districts.

Toad—*Bufo vulgaris* (Laurent).

Also common, and ascends clear mountain burns to a considerable altitude. The same remark as regards comparative rarity in the limestone districts applies as to the last species.

Rough Newt—*Triton eristatus* (Laurent).

Not uncommon. Wolley recorded it, and Messrs. Alston and Harvie-Brown have met with it on several occasions near Loch Assynt, and the latter gentleman once close to Loch Inver.

Smooth Newt—*Triton taimatus* (Schneider).

Not uncommon.

Palmated Newt—*Triton palmipes* (Latreille).

The only record of this species as yet obtained, is that by Mr. Wolley, who wrote in the *Zoologist* (1848, p. 2265)—"I have to report the existence of our recently ascertained Newt on the extreme north of the Island. On the 1st August I found several females and one male in a little freshwater peaty pool, a few hundred yards from the high-water mark, on the side of the hills which rise from Loch Erriboll, and on the west side of the loch. It is an inlet of the sea, about sixteen miles to the east of Cape Wrath, on the north coast of Sutherland." Mr. Alston wrote commenting on this—"We are not aware of the species having been found in any other part of the North Highlands." —(*Proc. Nat. Hist. Soc. Glasgow*, 1880, p. 149.)

AVES.

Family FALCONIDÆ.

The Golden Eagle—*Aquila Chrysaetos* (Linn.)

Resident: still abundaut: generally distributed wherever suitable rest and quiet is afforded. Not now so much killed down as formerly, when, about 1834, in three years' time, no less than 171 full-grown eagles, besides 53 young birds and eggs were destroyed (Selby). In 1877 Mr. Crawford, Tongue, considered there had been a decrease of Eagles owing to extravagant prices offered by collectors. It is not our intention here to make public all the eyries of the county, though we believe almost every site is kuown to us. Most abundant in the west and north, rarer in the east and south; we are, however, glad to be able to add that one eyrie, for years deserted, and situated in the south-east, has again been tenanted for the last two or three years, and most of the other eyries are still used.

In one gleu six of these birds have been seen at one time; some of these would probably be young birds reared by a pair of birds that breed regularly there.

White-tailed Eagle—*Haliaetus albicilla* (Linn.)

Resident: not so abundant as the Golden Eagle in this county: their eyries principally confined to the coast-line. Eyries can be counted on one's fingers. A position said to be perfectly inaccessible is at a point a little east of Whiten Head, on the north coast. Another, nearer Cape Wrath, is not inaccessible, though only reached by one man

known to us. Some years ago one of the birds of this nest was destroyed by a well-known writer on Highland sports; since then the remaining bird has not taken to itself another partner. In the east there is no eyrie known to us in Sutherland, though one existed many years ago on the Caithness side of the Ord. An albino variety of this bird was killed at Achinduich, in the parish of Lairg, in November 1859. The last specimen we handled from this locality was killed in spring, about the year 1872, at Kintradwell; another, killed in the spring of this year at Durness, came into Inverness for preservation.

Osprey—*Pandion haliaetus* (Linn.)

It is to be feared quite extinct as a breeding species. Old sites are Ardvrack Castle, on Loch Assynt, and a "stack" of rock in a loch near Guallin shooting-lodge. It was reported to have returned to this latter site in 1881, but this was not corroborated; the remains of this old nest near Guallin were still visible in 1881. The Osprey was never recorded as breeding anywhere in the east of the county, no doubt on account of the lack of suitable sites. In 1834 Sir W. Jardine's party saw four Ospreys on the wing at the same time, hovering over the mouth of the Laxford river; such a sight can never be witnessed there now. In the third week of June 1879, an Osprey haunted Loch Brora for a week, and in May 1881, and again, in the same month of 1883, we saw an Osprey flying up the higher reaches of the Helmsdale.

Iceland Falcon—*Falco islandus* (Gmel.)

A rare visitant; but has occurred on two occasions at least, once at Sciberscross in 1868. This bird is preserved in the Dunrobin Museum; it appears, from a single feather examined, to have been a bird in its second year's plumage, at all events an immature bird, of about that age. The other was taken at Altnaharra, in the centre of the county. There is a third in the collection of the late Mr. Dunbar of Brawl.

Peregrine Falcon—*Falco peregrinus* (Gmel.)

Resident; and still holds its ground, despite the incessant persecution it receives from gamekeepers. This is the "Falcon" of the Highland keeper, who rarely calls it by any other name; being extremely difficult to trap, the birds are generally shot during the nesting season. Some eyries have been deserted in our recollection, while others again have been formed; the absence of suitable nesting-places make them rarer in the east than the west. In the deer-forests of Dunrobin and Ben Armine Peregrines are rather preserved than otherwise.

Still fairly abundant in the west, and we know of about eight eyries on the north and west coasts between Whiten Head and Loch Inver, and about eight inland eyries in Assynt within a radius of ten miles. Not much decreased of late years, though many are killed.

Our experience in regard to this and other species of birds is, that whenever the old ones are killed the old nesting-place is occupied the next season by others, very probably young birds which have escaped destruction in former years; but the re-occupation of favourite breeding haunts by many species, after temporary desertion, may possibly be explained under certain phenomena of migration, and certain fixed lines by which species travel.

Hobby—*Hypotriorchis subbuteo* (Linn.)

Very rare visitant. One example was shot by a brother of Mr. Macleay of Inverness, at Achany, many years ago, and sent to the late Mr. Dunbar of Brawl Castle.

Merlin—*Falco æsalon* Gmel.)

Resident: partially migrant to coast-line; common, but not so abundant as formerly; still, certain haunts known in 1870 were occupied in

1882 in Assynt. Considerably shot down in game-preserving interests. Rarer in the wooded districts of the south-east; common in the more central ones.

This species appears to have been less common in Mr. Wolley's time, as he "was not sure that he ever saw this bird in Sutherland;" this was in 1852 (cf. *Ootheca Wolleyana*, pt. I., p. 105).

Kestrel—*Falco tinnunculus* (Linn.)

Breeding visitant; rarely resident; very common in the east throughout the breeding season, laying its eggs in any convenient hole in the rocky burn-sides so numerous in the Highlands. The birds generally leave the higher ground about September, and migrate to the coast, where they remain a short time before going farther south. The earliest date on which we have seen this bird is February 17, 1884; but this may have remained through the winter, which was extremely mild.

Resident at Tongue, but scarcer in winter than in summer; indeed, probably the exceptions are residents.

Sparrow-hawk—*Accipiter nisus* (Linn.)

Resident: a partially migratory species, numbers of young birds appearing about the cultivated grounds in the autumn. This bird is increasing very much in the south-east, probably on account of the number of plantations of Scotch fir which are springing up, as in 1870 we only knew of one nest in the immediate vicinity of Brora, and now (1884) the keeper there was complaining to us of their numbers. Holding its own, in spite of persecutions at Tongue, though other hawks are becoming scarce. Not known as yet in the west. We have never seen the nest of this species in birch-woods in Sutherland, but Mr. Booth mentions the fact of their breeding in such places, as, for instance, in an old hooded crow's nest on a birch-tree at Loch Craggie.

Kite—*Milvus ictinus* (Savigny).

At one time a common bird, the Kite is now extinct, nor does a Sutherland specimen exist in the Dunrobin Museum, though there is one in the collection of the late Mr. Dunbar of Brawl. Mr. Macleay, the well-known birdstuffer in Inverness, writes to us:—"When I was a boy the Kite was a very common bird in Sutherland, and I once got its nest. It was no uncommon thing to see half a dozen together, circling about in the air at Rosehall." Since then the cutting down of all the large trees and continued trapping have done their work, and the Kite exists there no longer. Some fifty years ago the Kite used to be seen in the Helmsdale Strath, but our informant could not say whether it nested there. It had become rare by St. John's time —A.D. 1849.

Common Buzzard—*Butco vulgaris* (Leach).

By no means a common species in the east, though a season rarely passes without a few being seen. The only nest that came under our observation in this district was taken from a rock below which the Blackwater, the principal feeder of the Brora river, runs, in May 1874; although, we understand, neither bird was killed, the site does not appear to have been occupied again. There used to be a breeding-place near Loch Naver, but the birds were always trapped or shot before they brought out their young; this was previous to 1869. Much scarcer in the west by 1877 than previously, many old sites being deserted or tenantless. One season we took no less than eight sets of eggs within a radius of 10 miles. In 1877 the only nest in the district was 10 miles off. But in 1878 a previously occupied site was again used, and young brought out. Reported to us as exceedingly rare in Assynt in 1884.

Rough-legged Buzzard—*Archibuteo lagopus* (Gmel.)

Very rare autumn visitant. We have seen a specimen from Helmsdale

in Mr. Macleay's shop in Inverness, where it had been sent for preservation. Specimens have also been obtained from Berriedale in Caithness, close to Sutherland. Another Sutherland specimen passed through Mr. Macleay's hands; it was killed many years ago at Achany.

Honey-Buzzard—*Pernis apivorus* (Linn.)

A rare autumn visitant; several have, however, been procured, two of which are now in our possession. The first, a female, was killed in the large Uppat woods, near Dunrobin, in July 1879, and in September of the same year a young one, with the down still adhering to the tips of its feathers, was killed at Balnacoil, not far from the same place. Other specimens are in the Dunrobin Museum, one of which was shot at Kildonan up the Helmsdale Strath.

Hen-Harrier—*Circus cyaneus* (Linn.)

Resident, and still fairly common in the east, though killed down on every occasion that offers. Like others of the Raptores the Hen-Harrier resorts to the same place for nidification year after year, thus leading to its destruction. A pair of birds were shot at the nest in the Dunrobin Forest on May 14, 1881, the male of which had not then attained the adult plumage. Previous to 1877 common in the west, since then has almost disappeared. Three breeding sites previously known to us have been untenanted for several years. In 1878 not one was seen; and still very rare in 1879.

Family STRIGIDÆ.

Tawny Owl—*Syrnium aluco* (Gmel.)

Resident, but not very common; of most frequent occurrence in the wooded districts of the south-east. Breeds near Balnacoil, Dunrobin, and Rosehall, in which latter place it was unknown forty years ago, when Mr. Macleay of Inverness was a boy there. Mr. Crawford includes it as breeding at Tongue in the north.

Long-eared Owl—*Otus vulgaris* (Flem.)

Rare, but breeds in the Dunrobin district; will probably extend its range with the increasing number of plantations. Used to be very common at Rosehall before the large woods were cut down. Also occurs in the woods around Loch Migdale, near Bonar. It is reported as breeding also at Tongue; indeed Mr. Thomas Mackenzie received the young from there.

Short-eared Owl—*Otus brachyotus L.*

A decidedly rare species, but is recorded by Sheriff Mackenzie as having bred near Dornoch in 1873. On only one occasion have we seen this species in the east of the county. In the west we have only once obtained an egg from the Cromarty side of the march. Mr. A. G. More includes it as breeding regularly in the county. They were said to have bred on an island of Loch Awe, in Assynt, in 1876. We ourselves saw a bird which we felt sure was this species, pass our camping ground by the side of a loch in Stoir, on the night of 13-14th June 1877.

Snowy Owl—*Nyctea nivea* (L.)

A very rare visitant. An example, killed at Achintoul in the parish of Kildonan, passed through Mr. Macleay's hands, and another was in the collection of the late Mr. Dunbar of Brawl.

Barn Owl—*Strix flammea L.*

Very rare in the east; one was shot at Kildonan on the 12th of September 1883, and there are other specimens in the Dunrobin Museum. Rare

in the west of the county, but has been known to breed at a certain locality on the south shore of Loch Assynt. We have seen it in autumn (August) when cover-shooting; or, at other times, in the birch-woods at Loch Letteressee; at the west end of Loch Assynt, or nearer Loch Inver. It is known to some natives, but not to all. Breeds occasionally at Tongue (J. Crawford); and rarely, or occasionally, about Rosehall.

Tengmalm's Owl—*Nyctale tengmalmi* (Gm.).

St. John records a specimen of this owl killed at Spinningdale in May 1847, by Mr. Dunbar.

PASSERES.

Family LANIIDÆ.

Great Gray Shrike—*Lanius excubitor* (Linn.)

Irregular autumn visitant; more common perhaps than is supposed. Observed as long ago as 1845, a specimen in the Museum being dated that year. We have ourselves observed one or two specimens on the south-east coast, and there is in our collection at Dunipace a male bird shot near Tongue, and sent to us in the flesh by Mr. Crawford, on 7th December 1875.

Family MUSCICAPIDÆ.

Pied Flycatcher—*Muscicapa atricapilla* (Linn.)

An irregular spring visitant. The first known to have occurred in the county was obtained by ourselves in a very wild burn, some eight or nine miles from Brora, on the 27th of May 1872. After that none were observed again until the year 1881, when a pair came into Mr. Houstoun's back garden at Kintradwell, and took up their quarters there for some days, feeding about the window that looks into the garden; they eventually disappeared, though never disturbed, as Mr. Houstoun had good hopes of their breeding there. About the same time—May 2—two of these birds were picked up dead at the Meikle Ferry, near Tain, in Rosshire, and on the 4th another was found dead, and brought, along with the preceding two, to Sheriff Mackenzie. The latter is in our collection at Dunipace.

Spotted Flycatcher—*Muscicapa grisola* (Linn.)

Summer visitant; commonest in the south-east; more rare in the north and centre, but has been found nesting all the way in suitable places between Dornoch and Tongue by Sheriff Mackenzie. In 1878 we met with it for the first time at Inchnadamph, where a pair took up their quarters. We also, in the same year, saw one bird on the Loch Inver Road, near Assynt shooting-lodge. It does not seem to progress where birch only grows, at least such has been our experience hitherto.

Family CINCLIDÆ.

Dipper—*Cinclus aquaticus* (Bechst.)

Common, and resident in all the rivers and burns of the east. When driven out of these by ice, the birds hang about the mouths at the sea-coast, where the water does not freeze. At one time a reward was given for their heads, on the ground that they ate the salmon spawn,

but this having been happily disproved, these cheerful birds are left to breed in security and peace; and, partly by our own exertions, the premium has been withdrawn. Fluctuations in numbers occurred in the west of the county owing to these persecutions, but since the premium was withdrawn they have again increased. In one return of "vermin" killed, which we have received, the following were the numbers of water-ouzels killed:—In 1874, 64; in 1875, 86; in 1876, 33; in 1877, 41; in 1878, 75; in 1879, Jan. to June, 54: old and young. Happily *nous avons changé tout cela*, and if the premiums were placed on the hooded crows and bag-nets it would be more practical.

Family TURDIDÆ.

Missel-Thrush—*Turdus viscivorus* (Linn.)

Common, and resident in the south-east, and has much increased in the last twenty years; much reduced, however, by the two severe winters of 1878-79 and 1880-81; now again regaining its numbers. Said to have bred at Loch Naver by Selby in 1834.

In the west and north rare, up to 1865, but at that time breeding and increasing as far north as Caithness. Increasing after date of 1865; now breeding commonly about Rosehall, and reaching as far as Tongue. Said to have bred at Cape Wrath, but this is doubtful. In 1877 we saw a bird at Rosehall, the first we had seen in the district, and in 1878 the remains of an old nest near Loch Inver. Seen commonly since that time, especially about Rosehall, but still not seen in the west. Reported as "quite disappeared" at Tongue in 1881, though before that date "abundant," the severe winters having rapidly influenced them. Can now be only looked upon as occasional at Tongue.

Song-Thrush—*Turdus musicus* (Linn.)

Resident and common, though one of the species that suffered most in the two before-mentioned severe winters; very common about the older whin bushes that border the south-east coast-line. Common in the west at Scourie, and especially at Badcall and Loch Inver; common at Tongue until the winter of 1878-79. Reported by Mr. Selby, on information received, to remain all winter at Tongue, on the shore and other low situations, and to resort, as we have been assured, to the higher tops of the mountains, even in mid-winter, to feed on the numerous berries. First observed at Inchnadamph in 1877. In 1881 reported to have been utterly exterminated at Tongue, as indeed was the case throughout a large part of Scotland, the west coast and the Hebrides, however, still holding the usual numbers, owing to the influence of the Gulf Stream upon the climate.

Redwing—*Turdus iliacus* (Linn.)

Perhaps best described as a common autumn visitant to the east, more rarely remaining the winter through; the flocks that arrive are not nearly so large as those of the fieldfare. On one occasion we were witnesses of a migration of this and the next species at Glenrossal in the autumn of 1875, large numbers of each arriving all one afternoon, settling for a short time in the trees that fringe the river Cassley, and then passing on; next day few or none were to be seen.

Fieldfare—*Turdus pilaris* (Linn.)

Like the last, more common in autumn than in winter in the south-east, especially of late years, the birds seeming to dread remaining so far north after suffering so terribly from the two late severe winters. We have at times seen very large flocks of Fieldfares after their arrival sitting on the hillsides, but these soon after either broke up or went

farther south, single birds at times remaiuing behind until severe weather drove them nearer the coast.

Blackbird—*Turdus merula* (Linn.)

Resident; partially migratory, many more appearing during autumn and early spring than during the breeding season. We know of one Blackbird—a cock—whose wing, though now quite strong, has been at some time injured at the pinion, and this bird has haunted one particular spot for about five years. Common about Loch Inver, and in sheltered and wooded western situations, but almost unknown in the interior, and not distinguished by name by the natives from the ring-ouzel. Common at Tongue.

Ring-Ouzel—*Turdus torquatus* (Linn.)

Summer visitant, and spread through the whole of the milder districts of the east, where there is a mixture of rocky hillsides or burus, amongst which this species delights to nestle. Early in April it gives notice of its arrival by its pleasant whistle (it can scarcely be called a song) being heard in all its accustomed haunts; in late summer it will occasionally enter the gardens with the blackbirds after fruit. Abundant in the west, especially amongst the limestone rocks of Assynt, and along the burns which rush headlong from Ben More. We have taken three "clutches" of eggs in one short afternoon.

Family SYLVIIDÆ.

Hedge-Sparrow—*Accentor modularis* (Linn.)

Resideut; common; extending its range wherever plantations are springing up; it has now got up to Badenloch, in the centre of the county, where there are a few trees planted round the shooting-lodge. Occurs also far from wood, as for instance at the back of Ben More Assynt, by the heather-clad shores of the Gorm lochs, where a pair seeu by us evideutly had young. Common at Tongue.

Redbreast—*Erythacus rubecula* (Linn.)

Resident, aud common in the east, though nowhere, strictly speaking, an abundant species. One day in December 1882 we observed a number of Robins in the Dunrobin grounds; there were at least ten in as many square yards. Has increased around Loch Inver iu the west, since the plantations have got up, and is uot uncommon there. Common at Tongue.

Redstart—*Ruticilla phœnicurus* (Linn.)

A summer visitant to the east, aud extending its range, as it is now found a considerable distance up several of the straths in the district, where there is sufficient wood for shelter and food. In 1870 it was not such a common bird as it is now in the Dunrobin district. In the north of the county it is reported as rarer in 1877 than formerly, "and none for the last five years," by Mr. J. Crawford, but we have found it increasing of late years in the west of the county, and spreading down the valleys towards the sea. Observed at Altuaharrow in 1881; as early as 1878 near Loch Inver, and bred and reared young at Inchuadamph for the first time in 1880. (MS. of E. R. A.) Proceeding westward, up to 1875 we only remember seeing it on two occasions in the county—once at Loch Awe in the west and once at Rosehall, but as early as 1834 Selby saw it at the latter locality and once at Oykel Bridge. In 1864 an unusual migration of this species occurred upon the Caithness coast on or about the dates of 8th, 9th, 10th October, with a furious south-east gale, as recorded by Mr. Osborne. (*Field*, Jan. 9, 1864.)

Stone-Chat—*Pratincola rubicola* (Linn.)

Resident; pairs are seen scattered throughout the country to the east in every month in the year, though they retire nearer the coast-line as winter approaches; they are unsociable birds, more than two being rarely seen together. In the west more abundant than the next species, but locally distributed. Observed at Altnaharrow in June 1881. Common, and breeding at Tongue. (*Auct.* J. C.)

Whin-Chat—*Pratincola rubetra* (Linn.)

A summer visitant; very common in some localities in the east, and going quite into the centre of the county to breed. Local in distribution in the west; plentiful between Lairg and Scourie (E. Rawson *in lit.*), and seen by us commonly here and there between Rhiconich and Durness. Reported common at Tongue.

Wheatear—*Saxicola œnanthe* (Linn.)

Summer visitant, and extremely abundant in the east. Before his departure for the winter the male changes his plumage into the more sombre hues of the female. Even in very exposed situations far up in the county, these birds constantly remain as late as October. In Assynt extremely abundant, also especially in the limestone districts, but not so abundant in 1877 as previous to that date. Common also at Durness. We have found them in pairs on the summit of Ben Chaoran (2500 feet above the sea). Least abundant in the broken ground of the Stoir peninsula and interior parts of Edderachyllis.

Sedge-Warbler—*Acrocephalus streperus* (Vieill.)

A summer visitant; not rare, but very locally distributed both in the east and west of the county. It has been traced to the very north of Sutherland by Mr. Selby in the year 1834.

Whitethroat—*Sylvia rufa* (Bodd.)

Summer visitant; occurring in limited numbers through the whole of the east and south-east districts. Selby considered it rare in 1834, when it was observed once at Tongue and once at Bonar. In 1865 described by Mr. A. G. More as nesting "only occasionally in Ross, Sutherland, and Caithness" (*Ibis*, 1865, p. 25). But since then found to breed regularly near Tain, and seen by ourselves near Dornoch. Undoubtedly extending its northward distribution in Scotland. Reported common at Tongue.

Blackcap Warbler—*Sylvia atricapilla* (Linn.)

Very rare and casual visitant. A specimen obtained by Sheriff Mackenzie at Dornoch, on November 1, 1871, is in the Dunrobin Museum. The occurrence of this species during the period of autumn migration upon the coast of Caithness, on several occasions, has been taken notice of in the *Field* by the late Mr. Osborne, when it was observed to feed greedily upon berries of the mountain-ash or rowan-tree.

Wood-Wren—*Phylloscopus sibilatrix* (Bechstein).

Summer visitant; fairly common in the south-east district. This warbler was first observed by us in the summer of 1875 at Glenrossal, near Rosehall. The following year one was reported as having been heard at Kildonan in May 1876. (*Auct.* Lord Clifton, *Zoologist*, 1876, p. 5122). In 1877 we heard many in the Dunrobin grounds, and observed one at Kintradwell also, but this seemingly sudden increase is more likely due to the want of competent observers than to the absence of the birds themselves. Not known farther west than Lairg and Altnaharra. Of this we feel pretty certain up to date of going to press, but we will be surprised if it be not finally a summer visitant to the suitable

woods at Loch Inver. Indeed, we think we once saw it there, but only once in 1881.

Willow Wren—*Phylloscopus trochilus* (Linn.)

A summer visitant; extremely abundant wherever there is a little birch-wood. A single bush sometimes shelters a pair of Willow Wrens, but a bit of green, however tiny, seems necessary to their existence. A nest taken near Balnacoil, was placed in that of a robin from which the young had previously flown; it was lined with feathers and arched over.

Gold-crest—*Regulus cristatus* (Koch.)

Resident in the south-east, where it breeds in the fir-woods so suitable to it; large additions to its number arrive in the autumn, and these are scattered all through the district, as they do not then adhere so closely to the large woods, but haunt the smaller patches of birch and alder. A wonderful migration of this species occurred in the autumn of 1882, stretching in width of migration-wave from Faröe south to the English Channel, along our whole eastern seaboard, driven, helpless and exhausted, upon our shores, by strong continuous east and south-east winds. Much scarcer about Tongue since the winter of 1878-79.

Fire-crested Wren—*Regulus ignicapillus* (C. L. Brehm).

A specimen recorded by St. John in the collection of Mr. Bantock, late keeper at Dunrobin.

Family TROGLODYTIDÆ.

Common Wren—*Troglodytes parvulus* (Koch.)

Resident, and common everywhere in the east; frequenting the very wildest places on the hillside, especially the burn sides overhung with long heather, even in the severest winter. Perhaps not quite so abundant in the west, still common in almost every suitable locality; singing loud above the roar of the Kirkaig Falls, and sitting there almost within reach of the spray.

Family CERTHIIDÆ.

Tree Creeper—*Certhia familiaris* (Linn.)

Resident, and common in the east, where there is sufficient wood, and we have obtained its nest here. Generally solitary. Mr. Houstoun tells us that in the beginning of March 1882 he saw some dozens of these birds together, five of them on one tree. Unknown in the west; common at Rosehall, and present at Lairg and at Tongue.

Family PARIDÆ.

Great Titmouse—*Parus major*, Linn.

Very rare in the east; one specimen in the Dunrobin Museum. Sheriff Mackenzie writes us he has never seen this bird about Dornoch. This species has, however, certainly been observed by us on one occasion near Loch Inver, in the west. As yet absent around Tongue. There are eggs purporting to be of this species in the Dunrobin Museum, but unfortunately there are no notes available regarding them. If they were taken in a new locality it would have possibly helped our estimation of their distribution to have the date and place recorded.

Blue Tit—*Parus cæruleus*, Linn.

Resident; occurring in all suitable localities along the south-east where there is wood; more frequently observed in winter. Rare in the west and very local. Some years ago we described it as "common in the west but local," but we now believe this to have been an error; otherwise, there has been a change of circumstances. Our subsequent notes do not bear out the previously published statement.

Cole Titmouse—*Parus ater*, Linn.

Abundant and resident in the east; receiving apparently large additions in the winter. This Tit inhabits all the patches of old birch-wood in the district, and breeds there, in winter associating with such other birds as blue and long-tailed tits, and gold crests, besides those of its own species. Commoner in the west than either of the two last-named species. Common at Tongue (*Auct.* J. Crawford). Recorded as rare in Caithness (Osborne), only two specimens having been obtained there subsequent to 1840. In 1878, we found a nest of young Cole Tits, in a crack in a dry hill of peat, on a burn side near Overskaig on Loch Shin. The only trees, for quite a mile around, were a few birch-trees in a hollow on the burn side.

Long-tailed Titmouse—*Acredula rosea* (Blyth).

Resident and common, flocks being observed in winter in all the east coast straths we have visited at that season. Most frequently observed in winter and apparently more abundant then; this, however, as in the case of the cole tit, may be, firstly, because the leaves being then off the trees the birds are more easily seen, and secondly, that these birds then go in flocks. Sheriff Mackenzie informs us this bird breeds regularly in the birch-woods about Lairg. Present also around Tongue in the north, but reported as having decreased of late years, especially since the winter of 1878-79 (J. Crawford, 1884). Not observed hitherto in the west.

Family AMPELIDÆ.

Waxwing—*Ampelis garrulus*, Linn.

Very rare and casual visitant. The only specimen known to us came into the possession of the late Mr. Dunbar of Brawl; it was shot in a garden near Balblair, Invershin, date unknown.

Family MOTACILLIDÆ.

Pied Wagtail—*Motacilla lugubris*, Temm.

Summer visitant; abundant everywhere in the county, rarely remaining the winter through; arrives very early in spring.

Gray Wagtail—*Motacilla melanope*, Pall.

A summer visitant; fairly numerous in the eastern district. Returns with great regularity to the same nesting-place year after year. After the severe winter of 1878-79 two nesting-places we knew of in the latter district were, however, unvisited. Occurs in winter occasionally about Bonar, we having received a specimen from there in the flesh in 1869. Local in the west, visiting regularly the same spots every year. Not very abundant.

Obs. Ray's Wagtail—*Motacilla rayii*, Bon.

This species is included in Mr. A. G. More's sub-province 35, but with a mark of interrogation. He says "This bird has been seen as far

north as Sutherland by Mr. St. John and Sir W. Jardine," etc., but we have never met with it nor heard of it during some eighteen years' experience of the county.

Tree Pipit—*Anthus trivialis* (Linn.)

Summer visitant; rare and local. First recorded as a breeding species in 1875, when two pairs were seen and a nest taken at Glenrossal near Rosehall. At the latter place a single specimen had been observed before. Casual visitant in the west; the only instance of its occurrence we can recall being that of a solitary example at Inchnadamph previous to 1875. Reported occasional at Tongue.

Meadow Pipit—*Anthus pratensis* (Linn.)

Resident; partially migratory; abundant everywhere in summer, much scarcer in winter. Rarely occurs above the heather line, at least in our experience, though Selby speaks of it as met with "on the summits of the highest hills." This species, along with the Rock Pipit, were extremely abundant around Durness, and on the peninsula of Far-out Head, where we observed them in 1882.

Rock Pipit—*Anthus obscurus* (Lath.)

Resident; abundant; breeding all along the coast, excepting that part from about Port Gower to the Dornoch Firth where the locality is not suitable, but it is found there in the winter. Perhaps most numerous along the north coast; in great numbers on the peninsula forming Far-out Head, near Durness. Omnipresent on the coast-lines of the west, and on the islands, where it often breeds on the flat ground, under the shelter of a rock or stone, or ledge of turf, like the meadow pipit, though usually choosing the safer positions amongst the sea-pinks of the precipices.

Family ALAUDIDÆ.

Skylark—*Alauda arvensis*, Linn.

Resident, and abundant; breeding commonly along the coast-line and the low meadows in the valleys, more sparingly on the hills through the eastern and central districts, retiring from these latter places coastwards as winter approaches. Abundant on the inland moors above Oykel Bridge and around Loch Clashmore. Generally common around Altnagealgach, but farther west, in Assynt, more restricted to cultivated districts. Common at Drumbeg and Point of Stoir, also at Scourie and Altnaharra.

Family EMBERIZIDÆ.

Snow-Bunting—*Plectrophanes nivalis* (Linn.)

Winter visitant; common; only appearing on the low grounds in severe weather.

Reed-Bunting—*Emberiza schœniclus*, Linn.

Resident; not common; generally distributed in the eastern districts; much rarer in winter, and the same remarks apply in the west.

Common Bunting—*Emberiza miliaria*, Linn.

Resident, and common, being found along the whole of the eastern coast-line wherever there is sufficient cultivation; more abundant, apparently, in the summer than the winter. Observed in the west at Knockan and Elphin, also at Scourie, and the first observed at Inch-

nadamph in 1882. In 1882 we also met with it sparingly at Durness. It is fairly common at Rosehall, and on the districts bordering the Oykel river below Langwell, and the Kyle of Sutherland.

Yellow-hammer—*Emberiza citrinella*, Linn.

Resident, and common in the east. These birds extend far into the interior of the county to breed, returning to the greater extent of cultivated ground near the coast in the winter. Common in suitable places in the western districts. Apparently increased in numbers at Inchnadamph by 1877, and by 1880 more abundant around Lairg and the improved lands near Loch Shin. Seen at Altnaharra in 1881 not uncommonly.

Family FRINGILLIDÆ.

Chaffinch—*Fringilla cœlebs*, Linn.

Resident, and abundant, breeding through the eastern district wherever there is sufficient wood; in the autumn and winter these birds draw down to the more cultivated parts of the county, and their numbers appear to be increased by the addition of migrants. Has spread rapidly and increased in the west of the county. Formerly we only knew of one pair at Inchnadamph, which bred there for the first time about 1877. Now they are common, but a slight check was put on their increase by the severe winters. Also observed at Altnaharra and Tongue in 1881.

Brambling—*Fringilla montifringilla*, Linn.

Winter visitant of rare occurrence. One sent to Inverness for preservation by Mr. Macleay; of this bird I have received the following note:—"M'Intyre (the Balnacoil keeper) killed the Brambling two years ago in the autumn, at Aschoil (near Balnacoil). There were two of them, cock and hen, but the latter was destroyed by the shot. They were in company with a lot of chaffinches (?) M'Intyre said. He had never seen the same kind of bird before, nor has he since." (G. R. Lawson, *in lit.*) There is a Brambling in the Dunrobin Museum labelled "Tawny Bunting, Clyne, Mar. 1846," along with two tawny buntings (*vera*), and probably shot along with the latter; came originally from the old collection at the Dunrobin Kennels.[1]

Tree-Sparrow—*Passer montanus* (Linn.)

Local; probably resident. First described as a Sutherland bird by Sheriff Mackenzie from Dornoch, where he himself first observed the birds in 1872. On March 28, 1872, a flock of a dozen were observed in the neighbourhood of Dornoch, and between then and August several nests of eggs were obtained, one of which sets of eggs, thanks to Mr. Mackenzie, is now in our collection at Dunipace. The only place we have ever seen or heard of it in the west is at Clachtoll in Stoir, where we observed a single bird in 1883. First observed near Helmsdale in August 1880, again in September of the same year, and many subsequent times, such as in June 1881, January 1883, and December of the same year; again in March 1884. Their nest has not been found as yet at Helmsdale, but there is little doubt that they breed there.

House Sparrow—*Passer domesticus* (Linn.)

Resident, abundant along the east coast; local farther inland. At Gordonbush, Strath Brora, we never remember to have seen a

[1] It is curious to find how completely "out of the track of migration" of a large number of birds this county appears to be.

Sparrow; but at Balnacoil in 1879—and that year only—a pair bred there. Has once occurred at Badenloch. In the west appeared at Inchnadamph for the first time in 1882, when a pair arrived in spring after a gale of wind, and remained and bred, and they again are present in 1884. Common at Altnaharrow. Present, but not abundant, at Durness, also at Scourie, and again at Tongue and elsewhere.

Greenfinch—*Ligurinus chloris* (Linn.)

Resident; not numerous; probably confined to the south-east of the county. Rare or absent in the west, and rare about Tongue.

Goldfinch—*Carduelis elegans* (Stephens).

Must be extremely rare, as we ourselves have never seen this bird; Mr. Mackenzie informs us that it is known to breed at Dornoch, and that birds are occasionally seen in his neighbourhood. St. John remarks upon it as being very rare even when he was in the county, 1848, but it was common then in comparison with the present time. "A pair were seen in a birch-wood on the banks of Loch Laoghal by Mr. James Wilson"—one of Mr. Selby's party—in 1834. It has not been observed, up to date, at Tongue.

Siskin—*Carduelis spinus* (Linn.)

Resident; breeding about Dunrobin regularly, and probably does so through all the wooded districts of the south-east; the nest, however, is extremely difficult to find, being placed on a pine-tree, and generally at the end of a branch, concealed from beneath by the cup formed by the uprising of the terminal fronds. Our informant says that they breed at two different times of the year,—first in April and May, and again in June and July, he having taken the young in August; he also says the earlier breeders are smaller and more lively and cheerful than the later ones. Mr. T. Mackenzie reared a young one taken on the 21st May 1875, and it proved an interesting pet. Mr. E. R. Alston observed several birds at Rosehall when he was passing south in June 1877.

Lesser Redpoll—*Linota rufescens* (Vieill.)

Breeds rather commonly in some of the birch and alder woods on the east coast; fresh eggs may be taken from the middle of May to the middle of June. Breeds almost in a colony, near Lairg. Not hitherto observed in the west of the county, and unrecorded in the Tongue district, or elsewhere in the north.

Linnet—*Linota cannabina* (Linn.)

Resident, and common on the east coast, especially from Port Gower to the Mound, where there are great quantities of whin bushes suitable for breeding sites; their place in the straths is taken by the Lesser Redpole. Not common in the west. During our experience we have shot some half-dozen specimens. Occurs, perhaps regularly, at Inchnadamph. Seen there, certainly, previous to 1877, and again in that year, but not observed since then. Reported common at Tongue.

Twite—*Linota flavirostris* (Linn.)

Not known in the south-east, at least as a breeding species; may possibly occur with the flocks of common linnets in the winter. Breeds regularly at Inchnadamph, and has done so as long as we remember the place, but only in limited numbers. In 1884 a flock of at least 40 seen in early part of May by Mr. J. Young. Comparatively common also at Drumbeg, on the north coast of Stoir, where we met with them first in 1883. Rare or absent, so far as known, on the north coast between Cape Wrath and Whiten Head, though the ground around

Far-out Head is admirably suited to their requirements. Decidedly increased in number at Inchnadamph by 1882. No absolute record from Tongue.

Bullfinch—*Pyrrhula europœa* (Vieill.)

Resident; not very common, most frequently seen in the winter; more abundant probably in the east than the west during the summer, in which latter district it was first seen by us in July 1883, in the plantations around Loch Inver, on which occasion we saw a good many. Mr. Crawford never saw any at Tongue except during one year, about ten years ago, say 1874.

Crossbill—*Loxia curvirostra* (Linn.)

Resident; breeding in the large fir-woods in the south-east of the county; in some years they are more abundant than in others; they were plentiful in the year 1881. As early as 1849 St. John speaks of the Crossbill as becoming numerous. At Rosehall they were only common for a short time about fifty years ago, after that they entirely disappeared, as we are informed by Mr. Maclcay, who was a lad at the time, and saw them about that time.

Family STURNIDÆ.

Starling—*Sturnus vulgaris*, Linn.

Resident and increasing; rare previous to the year 1870. This species is at present mostly confined to the coast-line; a pair, however, bred at Balnacoil, ten miles up the Brora Strath, in 1879. Abundant at Scourie, Handa, and the Badcall Islands, where they nest in holes in the peaty turf, and also in holes which we believe to be occupied later in the season by petrels (Thalassidroma). Common also at Durness and Tongue.

Raven—*Corvus corax*, Linn.

Resident, only a few pairs breeding in certain localities throughout the eastern district; most abundant in the late spring and autumn. Near Balnacoil there is a rock in which more than a hundred Ravens used to roost, as late as 1878; there was another rock where great numbers also roosted, but this has been deserted for years, so probably they took to the other locality mentioned above.[1] Common in the west, though much persecuted, but scarcely so abundant as some eight or ten years previous to 1877. Scarcer around Durness, though by no means approaching extinction in 1882.

A pretty regular crop of Ravens is found annually, as shown in the following notes:—

In Assynt in 1870	. .	7	And in Durness in	1874	. .	11
,, 1871	. .	10	,, ,,	1875	. .	10
,, 1872	. .	18	,, ,,	1876	. .	14
,, 1873	. .	19	,, ,,	1877	. .	14
,, 1874	. .	17	,, ,,	1878	. .	9
,, 1875	. .	24	,, ,,	1879	. .	16
,, 1876	. .	10				
,, 1877	. .	7				
,, 1878	. .	2				
,, 1879	. .	1				
Total in Durness and Assynt in ten years	. . . .	189				

[1] These congregations of Ravens are not common in Scotland; other localities known to us where they occur are at certain points of the Wigtonshire coast, and the hills of the Stewartry of Kirkcudbright.

In the Reay Forest in six years to 1880	112
And by another hand in same place in seven years—1873 to 1879	224
In Assynt, by one keeper, besides the above	134
At Dunrobin, 1873-80	202
Assynt, by another hand	31

Total killed in the county, so far as our returns show in a single decade, 662 Ravens, which, at a premium of 2s. 6d. each, represents money to the amount of £82 : 15s.

Carrion Crow—*Corvus corone*, Linn.

Very rare in the east. One bird paired with a hoodie in 1878, and both old and young were subsequently killed in a wood near Dunrobin. They are stated to breed in a wood near Melvich in considerable numbers. At Tongue a brood is reported to appear usually, after the young rooks have flown, amongst the rooks, and this has taken place annually since 1879 inclusive. Mr. Crawford also speaks of them as breeding in some numbers at Kirkton, near Melvich; and in a letter dated 17th of March 1884 he also says:—"Carrion Crows are, I regret to say, becoming very numerous and destructive to game of every description." Unknown in the west.

Hooded Crow—*Corvus cornix*, Linn.

Resident, and too abundant; no great additions arriving in autumn, as is the case lower down on the east coast, the average numbers being pretty well sustained the year round. The total returns we have received from Assynt, Durness, Reay Forest, and Dunrobin, etc., in nine years, are 3392, which, at 1s. each of premium, represents £169 : 12s. Besides these there must be, probably, half as many more killed for which no premiums are paid. Appears to be well kept down in the Durness district.

Rook—*Corvus frugilegus*, Linn.

Resident; abundant; rapidly increasing in the east. A few pairs of these birds used to breed in some very low trees near Balnacoil; these, however, have lately been cut down. A solitary pair of Rooks built in a birch-tree in a small wood near the same place. To the west the only rookery we are aware of is at Cama Loch, in low birch-trees. In corroboration of a surmise that they would spread to the wooded shores of Loch Beannoch, near Loch Inver, and there endeavour to displace the herons, in 1877 they did appear and began to build; but the keeper, who told us of the fact, shot them down promptly, and they have not since renewed the attempt. Flocks occasionally crowd the trees round the manse at Inchnadamph, but no attempts have yet been made at building there.

Rooks have established themselves at the following localities, and the notes appended are the results of an inquiry we engaged in in 1879, according to a circular sent out throughout Scotland:—

A very old-established rookery at Dunrobin, with a colony in 1879 of about 200 nests, built upon ash, elm, and Scotch fir. They have been kept in moderate numbers, and have not increased or decreased much. They have other roosting-places.

A rookery, a few years old only, established at Skibo with a colony in 1879 of under 100 nests, built on Scotch fir and ash, have since increased. Roost elsewhere.

At Kilmote, age of rookery unknown, about 100 nests in 1879, Scotch fir and ash; increasing.

At Tongue, established about 1855, colony in 1879 of about 500 nests in Scotch fir. Increasing, and usually roost at another wood, migrating daily to Far-out Head for food during hard winters.

At Kirkton, Rooks first appeared in 1860, the first pair breeding amongst rocks at Bighouse Bay, and afterwards taking to the old fir-woods at Kirkton; they originally came from Westfield, in Caithness;

in 1879 there were about 500 nests, and were still increasing; these birds generally roost at the same wood in which their nests are.

Jackdaw—*Corvus monedula*, Lin.

Resident, abundant, and everywhere increasing; keeping, however, near to the coast-line, and never venturing far inland. The Jackdaw is found sparingly at Tongue, but has not as yet appeared in the west of the county.

Obs. Chough—*Pyrrochorax graculus* (Linn.)

No trace of this species has been found that we are aware of since Dunbar and St. John, both referring to the results of the same trip, recorded the occurrence of it on the north coast. As St. John saw the birds himself there can be no doubt of the record, but their disappearance since is only the same process exemplified which is going on in other parts of Scotland as regards this species. A careful survey of part of the north shore and cliff may, it is possible, still discover a pair or two, but we consider this very unlikely.

Magpie—*Pica rustica* (Scopoli).

Resident; extremely scarce now in the eastern district, having of late years been killed down in the game-preserving interests; quite common in 1870. We find that, in 1873, 16 were killed in Dunrobin; in 1874, 26; none again till 1877, when 2 were killed; in 1878, 2; in 1879, 3; and in 1880, 5; or 56 in six years. Unknown in the west amongst the keepers, except by evil reputation. Unknown at Tongue.

Family HIRUNDINIDÆ.

Swallow—*Hirundo rustica*, Linn.

Summer visitant, but local; breeds here and there along the south-east coast, but not seen far inland. Probably more common about Dornoch than any other part of the county. Not common anywhere in the west, and decreasing. Have always been very late of arrival in the west. They arrive at Tongue about 28th April, which would be very early in the west. They disappeared from Tongue in 1867 and 1868, but reappeared in 1869; but they only very rarely breed there. Apparently absent from Altnaharrow in June 1881.

House Martin—*Chelidon urbica* (Linn.)

A summer visitant; local and scarce; occurs mostly in the south-east. One colony used to nest in a quarry or sandpit near the railway bridge over the Golspie burn. We have seen a pair of these birds at Baluacoil, Strath Brora, flying about and resting on the house in July, but apparently the place was not suitable for breeding purposes, as after a day or two they departed. Local and rare in the west, and decreasing annually, for some years prior to 1877. Used to breed in the limestone rocks of Stronchrubie, where we have only, however, in all our experience, found old nests, so they must have almost disappeared since Selby's record in 1834. St John found them in caves close to Durness. We saw nothing of these in 1881. Common at Tongue for a short time annually: doubtful if they breed there.

Sand-Martin—*Cotile riparia* (Linn.)

A summer visitant; common and generally distributed in the east, where suitable breeding localities can be found. Does not always breed in large colonies; in some places there are not more than a couple of pairs. These remarks apply also to the west, but they are probably still scarcer there, a few pairs frequenting a few scattered localities. Observed in some numbers at Loch Slam and on the Borgie river, near Tongue. There is a small colony at Lairg.

PICARIÆ.

Family CYPSELIDÆ.

Swift—*Cypselus apus* (Linn.)

Summer visitant; breeding in suitable localities along the south-east coast, but not plentiful. Seen at Badenloch, in the centre of the county, but does not breed there. Never observed in the west, nor, indeed, have we seen them anywhere in the north. Though reported as common about the limestone cliffs of Durness, and breeding in the Great Smoo Cave and elsewhere, we saw nothing of them there in 1881. At Tongue Mr. Crawford has twice seen Swifts, but they did not remain to breed, but tarried only for two or three days. Mr. Booth observed a few, however, near Durness, and again between Castletown and Dunnet Head in Caithness.

Family CAPRIMULGIDÆ.

Nightjar—*Caprimulgus europæus*, Linn.

A summer visitant; occurring pretty frequently in suitable localities in the east, and no doubt will increase its range with the growth of the young plantations. Up to 1875 apparently perfectly unknown in Assynt, their last outpost being Rosehall at that time. Was first observed at Casheldhu, near the head of Loch Erriboll in 1882, when a pair were frequently observed, and one unfortunately shot by the keeper—Mr. Murray—in whose hands it now is. The first we ourselves ever saw in the west was in July 1883 at Loch Inver, but they were reported to us as having occurred for some few years before that date. In July 1883 one constantly hawked for insects close round the Loch Inver Hotel in the evenings. Once observed at Tongue many years ago by Mr. Crawford.

Family CUCULIDÆ.

Cuckoo—*Cuculus canorus*, Linn.

Summer visitant; abundant in every part of the eastern district of the county, even on the barest hillsides. Abundant also in the west, and, indeed, all over the county—in the glens and hillsides, but not ascending very high among the hills. Heard for the first time at Inchnadamph on 23d May in 1877; season cold and backward, and many migratory birds were that year later of arrival here than is usually the case.

Family UPUPIDÆ.

Hoopoe—*Upupa epops*, Linn.

Casual and rare visitant. Mr. Houstoun writes from Kintradwell—"I am sorry I can't give you the dates of when the Hoopoes were got here, but I think it was in the month of September; they were got in the patch of big fir-wood." These examples occurred in different years. Others, said to have been taken at Golspie in June 1850, and again in 1858, are in the Dunrobin Museum.

Family CORACIIDÆ.

Roller—*Coracias garrulus*, Linn.

Rare visitant. An example was shot by a nephew of Mr. Fraser, the fiscal of the county, near Dornoch, and was set up by Mr. Macleay of Inverness. There is a specimen in the Dunrobin Museum labelled Morvich, June 9, 1854. The Dornoch one was shot much later. (*Auct.* Dr. J. M. Joass.)

Family ALCEDINIDÆ.

Kingfisher—*Alcedo ispida*, Linn.

Rare visitant. There is a specimen in the Dunrobin Museum. Another was killed at the Little Ferry by Eric Ross, one of the Duke of Sutherland's keepers, on February 1, 1878, and was seen in the flesh by Mr. Thomas Mackenzie.

Family PICIDÆ.

Greater Spotted Woodpecker—*Picus major*, Linn.

Accidental winter visitant; in 1862 (?) very abundant, being shot in almost every part of the east of the county, even on Ben Cliibrick, but several years may pass without one being seen.

Obs. Green Woodpecker—*Gecinus viridis* (Linn.)

One in the Dunrobin Museum is marked "Bonar, 1848," but this requires confirmation.

COLUMBÆ.

Family COLUMBIDÆ.

Ring-Dove—*Columba palumbus*, Linn.

Resident in the easteru district; very common in the wooded and cultivated parts of the south-east. A number of these birds spread up the straths and into any isolated patches of wood during the breeding season, retiring coastwards on the approach of winter. In Assynt, in 1869, one pair were observed at Inchnadamph, which remained for a few days, but did not tarry longer. In 1877 we find the note, "Not uncommon in the young plantations around Loch Inver." In 1883 they were seen commonly. Previous to 1869 they appear to have been unknown in the west. As early as 1834 Selby observed it at the base of Ben Loyal, near Tongue'; but he adds—"a few pairs only were seen during our excursion." Seen at Altnaharrow in June 1881.

Rock-Dove—*Columba livia*, Bonnat.

"At this time (1884) the Rock-Dove is nearly, if not quite, extinct in the east of Sutherland; eight or nine years ago they could be seen from morning until evening going to and fro from their breeding-places in the rocks on the Caithness side of the Ord, in flocks of thirty and forty, all the year through; now it is a rare thing to see one. The last I remember seeing was a small flock of about half-a-dozen flying over Helmsdale about three months ago. They are by no means a hardy bird, and I attribute their scarcity entirely to the several severe winters we have had since 1876. They have been seen to fall dead in

the air when flying during protracted severe weather. I have often caught them in the Navidale stackyards unable to walk or fly, nothing but bones."—(J. Hill, Esq., *in lit.*) Generally distributed on the north coast, more local in the west, preferring the mainland caves, as a rule, to those on islands. Fairly common at Stoir Head, but nowhere to be called abundant. A pair of apparently perfectly pure wild Rock-Pigeons frequented the iun at Inchnadamph in May and June 1877, associating with the House Pigeons ; they have not returned up to 1883.

Turtle-Dove—*Turtur communis*, Selby.

Very rare summer visitant. Two specimens in Dunrobin Museum are labelled "Kirkton, Jul. 1854:" "Crakaig, Sep. 1879." (*Auct.* Rev. Dr. J. M. Joass.) Mr. J. Crawford, writing us in 1879, says—"On inquiry I find that several Turtle-Doves have been shot in the Melvich district some three years ago. I do not remember having seen any here (Tongue) previous to the one I sent you." This bird was shot, but much lacerated, by a pea-rifle bullet, so much so that we could not preserve it.

PTEROCLETES.

Family PTEROCLIDÆ.

Pallas Sand Grouse—*Syrrhaptes paradoxus* (Pall.)

Extremely rare ; accidental visitant. A specimen in the County Museum was taken at Dornoch on June 6, 1863.

GALLINÆ.

Family TETRAONIDÆ.

Black Grouse—*Tetrao tetrix*, Linn.

Resident and numerous, being found scattered through the eastern districts, irrespective of wood or cover, but is more restricted in the west, and confined to birch coverts and the lake and river sides, being seldom seen on open ground.

Obs. Capercaillie—*Tetrao urogallus*, Linn.

Extinct in the county, though it was present in Sir Robert Gordon's time. Attempts at reintroduction have been made by Mr. Chirnside in 1870, at Skibo (*vide, The Capercaillie in Scotland.* D. Douglas, Edinburgh, p. 99), and at Ospisdale. One bird survived at Skibo for two years but finally disappeared. There being 1800 acres or more of suitable wood on the property, we cannot but believe that an attempt on a sufficiently larger scale would succeed, if it is considered a desirable addition to the game of the district.

Red Grouse—*Lagopus scoticus* (Lath.)

Resident ; some years more abundant than others ; most abundant in the season of 1880, since which time the county has never entirely been free from disease, though this scourge has not been equally destructive in all places. Grouse migrate much in this county ; many birds were seen at the beginning of 1883 on the east coast, yet few remained to breed, and scarcely any were to be found in the shooting season, nor

was any sign of dead birds found; in the west of the county, however, good sport has been had for several years back, in places where formerly scarcely a grouse was to be seen, and the conclusion is that the birds migrate there from the east.[1]

The fluctuations in numbers from year to year to which Grouse are now subject, opens up a large question for full treatment (which we have not room for here), owing to many causes which, we believe, are quite within the grasp of the naturalist to understand. Common in west Sutherland at certain localities, especially above the limestone, where in Assynt 700 and 600 brace were killed in two seasons respectively. Tape-worm in 1874, and late cold spring with frost and much cold rain, almost brought them to the verge of extinction in 1876 and 1877, and we did not see a single bird along all the 35 miles of road between Lairg and Inchnadamph, where they used to be fairly abundant. They partly recovered in 1878.

Rare in Stoir and Aardvaar, owing to the superabundance of old rank heather and irrepressible hoodie crows. Grouse do not "pack" in the west of Sutherland.

Ptarmigan—*Lagopus mutus*, Leach.

Resident; much scarcer than formerly in the east. Has disappeared from all the hills it used to inhabit on the Caithness march; also from the Bens Griam and Ben Uarie, within the last forty or fifty years, from the last-named place last of all; getting much scarcer, too, on Ben Armine, and even on Ben Clibrick. During the severe winter of 1880-81 three Ptarmigan were seen not far from Ben Horn in the Dunrobin Forest.

Abundant in the west, and all the high mountains, but more so on the continuous ranges than on the isolated hills. The range of Glasbhein, Ben Uidhe, Ben Harran (Chaoran), Ben More, and Braebag, is perhaps the best Ptarmigan range in the county.

Family PHASIANIDÆ.

Pheasant—*Phasianus colchicus*, Linn.

Resident; only numerous where hand-reared and preserved. Pheasants were introduced as long ago as 1841 at Skibo (*New Stat. Acct.*), where they are numerous at present. Introductions have taken place also at Kildonan in the Helmsdale Strath, and a few are seen occasionally near Loch Brora. In Assynt Mr. Whitbread introduced them in 1869, and they promised well for some time. Since then, however, they have practically become extinct, an old bachelor cock living on till 1882. Pheasants have also been introduced at Tongue quite lately. It remains to be seen how they will succeed.

Partridge—*Perdix cinerea*, Lath.

Resident; fairly abundant in the cultivated districts of the south-east, and occurs here and there farther inland, where the shepherds have a little more reclaimed land than is usually the case. A covey is occasionally seen at Badenloch, but they are not regular visitants there. The outlying coveys draw down to the coast in severe weather.

Common about Rosehall and Lairg. Seen at Tongue by Sir. W. Milner, and fairly common to the north of Loch Inver. A pair were seen in 1834, at Inchnadamph, by Mr. Selby's party; at this place, where there are only some 10 or 15 acres under cultivation, two pairs

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[1] With reference to the above, it may be noted here that a pack of Grouse was seen flying south over the Moray Firth, and making for the Banff coast, in December 1879.—(J. A. H.-B.)

were seen in 1869, and, in the autumn of that year, Mr. Hardcastle killed 16 brace. About the year 1877 there was only one pair in the district, and even these were not seen every successive year. From Tongue Mr. Crawford writes us, under date March 17, 1884, "Partridges are extinct (at Tongue) since the severe winter of 1879: I have only seen one solitary bird since then."

Quail—*Coturnix communis* (Bonnaterre).

Has occurred on the east coast on several occasions between Brora and Dornoch. A deserted nest was obtained by Sheriff Mackenzie in September 1873, and there are also specimens in the Dunrobin Museum. As early as 1830 the Quail is noted as occurring, being included in a list of birds given in *A Tour through Scotland*, p. 151, as seen there in the then keeper's house at Dunrobin. Several nests have been found about the same district.

FULICARIÆ.

Family RALLIDÆ.

Corn-Crake—*Crex pratensis*, Bechstein.

Summer visitant; very abundant in the east, being found in every locality where there is any extent of cultivation, and even occasionally out on the barren moor, but the latter rarely. Rare in the west, but a pair or two in most cultivated areas of sufficient size.

Water-Rail—*Rallus aquaticus*, Linn.

Winter visitant of not rare occurrence in suitable localities on the east coast.

Included as a breeding species by Mr. A. G. More in Sub-province 35, but we have no further corroborative notes.

Waterhen—*Gallinula chloropus* (Linn.)

Resident and local; mostly confined to the south-east, where in one place they are very abundant; we have received eggs from a locality in the north-east, and also seen a bird on a hill loch at a considerable distance from its more usual habitats.

Only one locality known to us in the west where one pair of birds bred regularly for a number of years. Common at Tongue.

Coot—*Fulica atra*, Linn.

Scarce; we have observed this species on Loch Bad-an-eontigh, in the parish of Rogart, and Mr. Crawford of Tongue informs us that he formerly (previous to 1877) observed this species on a small lochan in the parish of Farr, where it bred, but for some years back it had not reappeared there; we have observed it in one or two other lochs in the east of the county. Has been shot singly at Tongue; appareutly came in from seaward on two occasions. Not hitherto recorded in the west.

LIMICOLÆ.

Family CHARADRIIDÆ.

Dotterel—*Eudromias morinellus* (Linn.)

There is nothing to add to what has been said by St. John about the Dotterel in his time. Ben Clibrick is the only place in the county

known to us as having been visited by this bird; it has, however, been observed there both by Mr. Crawford of the Lairg Hotel, and also by Donald Gillies, for a long time a keeper with Mr. Akroyd at Altnaharra. A specimen in the Dunrobin Museum was obtained on Ben Clibrick on 18th June 1846.

Ringed Plover—*Aegialitis hiaticula* (Linn.)

Resident and abundant all along the east coast, and also breeds inland in one or two situations, notably on the shores of the chain of lochs at Badenloch. Rarer in the west, but common on the stony waste of land to the south-east of Durness, where the crofters cut their peats, near Loch Maidagh or Maeddie, and on the bed of a drained-out loch.

Golden Plover—*Charadrius pluvialis*, Linn.

Resident and abundant, but rarer and much more local in winter. Breeds through all the moorland district, being commoner in the wetter and more desolate districts. Numbers of these birds are often to be seen in a flock on the green ground high up along the river sides in May and early in June, probably non-breeding birds. Common in the west, especially above the limestone cliffs, on the moor stretching back towards Loch Mulach Corry. Common between Durness and Cape Wrath.

Gray Plover—*Squatarola helvetica* (Linn.)

Rare visitant. Said by Sheriff Mackenzie to occur at intervals along the Dornoch Firth. The only specimen seen by ourselves, and the only one in the Dunrobin Museum, was shot at Kintradwell, among some stones on the shore, on January 20, 1871: a solitary bird.

It may be worthy to remark here that Mr. Macleay of Inverness in all his long bird-stuffing experience has never received but this one specimen to set up.[1]

Lapwing—*Vanellus vulgaris*, Bechst.

Resident, and abundant; though much scarcer in winter than at other times. These birds ascend all the straths where they can find suitable places to build, even going quite into the centre of the county; the great bulk depart farther south after the breeding season. More local in the west, but abundant in one or two localities, and occasionally ground not before frequented is taken up by a few pairs, as, for instance, on the flat meadows along the course of the river Loanan, near Inchnadamph.

Turnstone—*Strepsilas interpres* (Linn.)

Common the whole year round the coast, excepting during the breeding season, from the middle of May to the middle or end of July, when it is much scarcer, although stray individuals occur even then.

Oyster-catcher—*Hæmatopus ostralegus*, Linn.

Resident, and common; receiving large additions in the winter, at which season the mussel-scalps at the Little Ferry are at times covered with these birds. Occasionally seen inland on fresh-water lochs in the west. Common on all the shore line and islands of the salt-water lochs.

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1 Our observations of migration tend to show that in spring Gray Plovers shoot off our coasts at Spurn Point in Yorkshire. In autumn they are regular visitors to the estuary of the Forth at Grangemouth, and also to that of the Tay.

LIMICOLÆ.

Family SCOLOPACIDÆ.

Gray Phalarope—*Phalaropus fulicarius*, Linn.

Very rare winter visitant. The only specimen known to us, and now in the County Museum, was shot at a pool of water on the Kintradwell links by Mr. Houstoun on December 3, 1869.

Rednecked Phalarope—*Phalaropus hyperborcus* (Linn.)

St. John's record is the only one we can find of this bird as a Sutherland species; a pair were seen by him at Altnaharra, at the head of Loch Naver, on June 10, 1848.

Woodcock—*Scolopax rusticola* (Linn.)

Resident, and common; as a breeding species has much increased of late years; rare in the central and north-east districts. Woodcocks seem to be least common about August and September; after the young can fly well, possibly they go south, thus accounting for "early arrivals" there. The numbers of those shot on the east coast varies with the season, as, unless driven in by frost, or, still more, deep snow, Woodcocks remain on the hills.

Common in the birch-woods of Assynt in summer, and flights occur in winter. Breeds regularly also around Tongue.

Common Snipe—*Gallinago cœlestis* (Frenzel.)

Resident, common, and generally distributed; more abundant in the lowlands in the winter, as the Snipes then leave the higher grounds. Much scarcer since the two late severe winters; and even before then these birds were getting much rarer in the central districts during the summer and autumn.

Common; but less so of late years in the west.

Jack Snipe—*Gallinago gallinula* (Linn.)

Autumn visitant, scarcer in winter. Much as has been said of the breeding of this species in Scotland there is no evidence of sufficient reliability, either in this county or elsewhere in Scotland.

Dunlin—*Tringa alpina*, Linn.

Resident; most numerous in the breeding season, rare in the winter. The Dunlin is sparsely scattered all through the moorland district in the breeding season, being most numerous in the wet flow lands of the centre, but nowhere very abundant. From its unobtrusive habits and extreme tameness it does not appear even as common as it is. The only place we have observed it in winter is on the large mud-flats on the north-east side of the Little Ferry, and Sheriff Mackenzie records it as common on the Dornoch Firth, near where it breeds in one locality. Annual breeder also at Lairg, and on the flows westward to Loch Shin, above Oykel Bridge, and at Loch Urigill, and again near Loch Inver at one locality. Very common near Cape Wrath and near Tongue.

Purple Sandpiper—*Tringa striata*, Linn.

Winter visitant, abundant along the coast wherever there are rocks and stones suitable for it; rarer on the sandy shores. We have noted this species as late as the 26th May 1868 on the Badcall Islands, and it is frequently seen late in spring and beginning of summer on the shores and islands of the west coast.

Knot—*Tringa canutus*, Linn.

Mr. Mackeuzie reports this bird as common at the Dornoch Firth; we ourselves once saw a large flock of waders at the Little Ferry, which we thought referable to this species; none, however, were procured.

Sanderling—*Calidris arenaria* (Linn.)

Autumn visitant, and scarce. The only place in which we have observed them has been the sandy beach between Brora and Kintradwell.

Obs.—There are specimens of ruffs (*machetes pugnax*) in full breeding plumage in the Dunrobin Museum, but there is not sufficient evidence of their having been obtained in the county to include them in our list; they are not recorded by Sheriff Mackeuzie from the Dornoch Firth. A ruff in Dunrobin Museum came there from the old collection at the kennels; but this is all the information regarding it.

Common Sandpiper—*Actitis hypoleucos* (Linn.)

Summer visitant, abundant all through the county, arriving about the end of April, and leaving directly the young are able to fly well. We have met with this species 2500 feet above the sea, in the old pass over Ben Chaorin. Breeds both inland and on the islands of the sea-lochs.

Green Sandpiper—*Totanus ochropus* (Linn.)

Very rare visitant. One shot at Helmsdale in the winter of 1879 (as far as we can remember); came to Inverness to be preserved, where we saw it in Mr. Macleay's shop.

Redshank—*Totanus calidris* (Linn.)

Resident, and abundant; generally distributed through the whole of the county in the breeding season, preferring those places, generally marshy, where there are tufts of grass in which to hide its nest; retires to the coast in winter. Rarer in the west, but common at one locality in Assynt. Less plentiful about Tongue than the greenshank.

Greenshank—*Totanus glottis* (Pall.)

A summer visitant, generally distributed through the whole of the county. One of the most interesting of the Sutherland birds. On their arrival about the end of April they go almost at once to their nesting-grounds, remaining a very short time on the low lands in the valleys; when the young are able to fly well they seem to go straight away to the south, not remaining long anywhere about the shores, at least in the east of the county. The nest is generally placed on a dry hillock, amongst stones and lichens, and the young are taken by their parents to the nearest marsh as soon as hatched.

Its local name in the west is "Teoch-vingh," in imitation of its cry.

Bar-tailed Godwit—*Limosa lapponica* (Linn.)

Autumn and winter visitant, occurring on the south-east coast most seasons, in small parties; has been seen and shot in the months of September, November, and December.

Obs.—Black-tailed Godwit—*Limosa melanura* (Linn.)

We would like to know what became of the specimen, said to be of this species, recorded, by "Nether Lochaber" (the Rev. Alex. Stewart of Ballachulish) as having been shot near Helmsdale (*Inverness Courier*, Dec. 26, 1881). Macleay of Inverness has only had one or two in his shop in all his experience, and it is an extremely rare species in Scotland.

Curlew—*Numenius arquata* (Linn.)

Resident in the east; most abundant in the breeding season. These birds breed all through the moorland districts, coming to the green places in the straths about the third week in March; shortly after this they pair and go to their nesting-grounds.

Common in the west, but local in the extreme west. Increased around Loch Awe by 1877.

Whimbrel—*Numenius phæopus* (Linn.)

Spring and autumn visitant, not rare on the east coast.

We can obtain no definite or trustworthy account of their breeding in the county, notwithstanding Mr. Dunbar's statement (*Ibis*, 1865, p. 435). Occur during spring migration on the north coast, and were supposed to retire to the interior, but there is every reason to doubt this, and to believe they left on a more northerly track. We have before criticised all previous records (*Proc. N. H. Soc. Glasgow*, 1875, p. 111). An egg handed to us as having been taken on an island in Glen Coul, Assynt, as belonging to this species is—however like a Whimbrel's—not authenticated, and may quite well be a deformed common gull. The texture is not that of a Whimbrel's egg.

HERODII.

Family ARDEIDÆ.

Heron—*Ardea cinerea*, Linn.

Resident, apparently more numerous in winter. Only one heronry is known to us in the east of the county, which, up to 1873, was situated on the south side of Loch Brora, but afterwards the birds removed to the Gordonbush woods on the north side. Herons frequent the inland burns as long as the weather is open, but when severe they come down to the coast.

Some of the principal heronries in the west are those at Loch Shin, on the island off the Fiag Burn, Loch Alsh (in the peninsular part of Ross-shire), Loch Cama (now extinct, rooks being in possession), Loch Beannoch, Stoir, Loch-na-Clash-fearn in Edderachyllis, etc. Scarcer at Loch Beannoch in 1877 than formerly.

ANSERES.

Family ANATIDÆ.

Gray-lag Goose—*Anser cinereus* (Meyer).

A summer visitant, not rare, but has become much scarcer in the last fifteen years, though not now so much shot at in the "flapper" stage as formerly. Less common in the south-east than in the central districts, the large lochs near Badenloch being a sort of collecting ground for the geese of that district. Arrives about the beginning of April, and leaves the middle of September.

Still not rare in the west, especially on a loch in West Cromarty. It is high time, however, that something were done to restrict the senseless slaughter of this interesting species. Many, apparently barren, or otherwise immature birds, flock together in summer in the west, while others are engaged in incubation.

Brent Goose—*Berniela brenta* (Pall.)

A winter visitant to the east coast, but not arriving until very late in the season.

Bernacle Goose—*Berniela leucopsis* (Bechst.)

Occurs at Scourie as a winter visitant.

Mute Swan—*Cygnus olor* (Gmel.)

A pair or two (tame) breed on Loch Brora, and there are also four or five about the Mound and Little Ferry.

Whooper—*Cygnus musicus*, Bechst.

An occasional winter visitant, a few being seen nearly every winter. Rarely seen in the west, more frequently in the north.

Bewick's Swan—*Cygnus bewickii*, Yarrell.

Winter visitant; one shot at Altnaharra in the winter of 1879; probably of more frequent occurrence than is supposed, not being distinguished from *C. musicus*.

Obs. American Swan—*Cygnus Americanus*, Sharpless.

Three, entered on the authority of Mr. Harvie-Brown, as shot at Tain, and which came to the Edinburgh market in 1880, it is to be feared are not satisfactorily identified. Mr. Harvie-Brown at that time based his opinion upon the anatomical peculiarities of the sternum and trachea, but it seems doubtful now if these are not merely distinctive of stages of age in the same species, and until we obtain a larger series for comparison, the faunal value of these birds must remain in this position for the present.

Shelldrake—*Tadorna cornuta* (S. S. Gmel.)

Most frequent during the breeding-season, nesting in the rabbit holes in the sandhills of the north and east coast; a few remain during winter at the Little Ferry. Very common on Rabbit Island or Eilean-nan-Ghael, Kyle of Tongue. Rare, or quite absent in the west, so far as we can learn, although several suitable places occur, such as the sandy slope of Handa, and the neighbourhood of Loch Sandwood.

Wild-Duck—*Anas boschas*, Linn.

Common and resident, the only one of the true ducks that is commonly to be met with inland during the winter. Common in the west, and general, often breeding far up the hillsides and away from water. Also at Tongue.

Shoveller—*Spatula clypeata* (Linn.)

As regards this duck Sheriff Mackenzie informs us—"Nor have we seen the Shoveller Duck in the Dornoch Firth, though we have both (referring to Mr. Jennins, who punts in that locality) shot young birds in the neighbourhood in the month of August. It was one of these latter that I got Macleay to preserve for me. This year I am to have a try for the eggs, for I know the loch where they breed." (*In lit.*, March 24, 1884.)

Teal—*Querquedula crecca* (Linn.)

Common, and resident; like the Wigeon, retires to the coast and estuaries almost entirely in the winter.

Tolerably abundant in the west, returning year after year to the same place to breed.

Pintail—*Dafila acuta* (Linn.)

Occurs in winter and spring; more frequent during the latter season; mostly confined to the south-east districts. Has occurred at Tongue, but rarely, and has not been seen much of late years.

Wigeon—*Mareca penelope* (Linn.)

Common, and resident in the east; most numerous at the Little Ferry and Dornoch Firth in the winter. Breeds abundantly in some parts of the eastern district of the county, notably about Loch Brora and Loch Naver, more sparingly in other places. Observed at the head of Loch Shin in summer of 1883, but it is open to doubt if it is found anywhere in the west, or between the mountains and the sea. It is found between Tongue and Loch Erriboll in the north, and theuce castwards.

Pochard—*Fuligula ferina* (Linn.)

Mr. Crawford tells us he is convinced this duck breeds at several localities in the Tongue district, and he instanced one loch where they are seen all summer. In the east it is a winter visitant only, not uncommon in the Dornoch Firth.

Scaup—*Fuligula marila* (Linn.)

Mr. Selby records a single female shot by Sir W. Jardine in 1834, which was attended by a young bird which escaped. Sir W. Jardine, in a subsequent communication to us, seemed to have some doubts if this was, however, a youug Scaup, but we cannot think there is reasonable cause to suppose it was anything else. We have other strong presumptive evidence of its having bred. In June 1868 Harvie-Browu shot au adult male Scaup on a loch in the west, which, from the bird's unwilliugness to leave, even when repeatedly fired at, led him to think the female was not far off; and there is other evidence elsewhere detailed (*Proc. Nat. H. Soc. Glasg.* 1875). In the south-east it is not an uncommou winter visitant about the Little Ferry and Dornoch Firth. Rare in the Tongue district.

Tufted Duck—*Fuligula eristata* (Leach).

Winter visitant; has been shot in the Dornoch Firth.

Golden-eye—*Clangula glaucion.*

Sir W. Jardine includes this species as observed on two occasions; one, a male, between Thurso and Tongue, May 17; and on another occasiou, from a small loch near Loch Maddy (or Maedie?), the party flushed a female on the 21st of the same month. Mr. St. John also observed it on Loch Laoghal in summer. It has been recorded by Mr. Dunbar as breeding near Loch Assyut in the hollow of au old larch-tree. There are now no larch-trees, to our knowledge, on the shores of Loch Assynt, and we have never met with the species during eighteen years' experience of the west. The Golden-eye is a common visitant to the eastern districts, frequenting many of the inland lochs and still pools in the rivers; these are, as a rule, young birds and females, the older males keeping more to the sea; they remain uutil quite late in the spring.

Long-tailed Duck—*Harelda glacialis* (Linn.)

A winter visitant, and very abundant along the coast wherever suitable for them.

Eider Duck—*Somateria mollissima* (Linn.)

Said by St. John to breed on the islands off the Kyle of Tongue; there are specimens of this bird in the Dunrobin Museum. Breeds in small

numbers at Eilean Hoan, entrance of Loch Erriboll, and other scattered localities on the north coast. In 1882 Harvie-Brown found broken egg-shells of Eider Duck upon Eilean Chlaimraig, close to Eilean Hoan, apparently broken by gulls, and the site of a nest of the previous year was pointed out by the fisherman who accompanied him.

Velvet Scoter—*Œdemia fusca* (Linn.)

Winter visitant, haunting the banks at the mouth of the Little Ferry, the Dornoch Firth, and also those towards Golspie. About 1870 they used to be met with opposite Kintradwell, but are rarely seen there now; perhaps the bank there may have shifted or got too deep for the birds to reach by diving.

Black Scoter—*Œdemia nigra* (Linn.)

Winter resident, not rare on the south-east coast. Dr. Joass of Golspie informs us that this species bred in Sutherland in the year 1877, the eggs having been taken, and both old birds shot.

As this species undoubtedly breeds not very rarely in Caithness, just across the county march, it is fairly to be expected it will also be found in Sutherland if looked for; indeed, we ourselves on two occasions in June 1878 thought we recognised this duck on a loch not far from Balnacoil. Recorded as often seen at Tongue. Not hitherto recorded from the west.

Goosander—*Mergus merganser* (Linn.)

There are two specimens of this bird in the Dunrobin Museum; we ourselves have not observed it in the county, but Mr. Booth reported to us—*viva voce*—that it bred on the Shin; and it also occurs occasionally in the Dornoch Firth. Occurs commonly, as reported by Mr. Crawford, at Tongue in winter. Not hitherto recorded from the west.

Red-breasted Merganser—*Mergus serrator* (Linn.)

Resident, and common; breeding throughout the whole of the eastern district; only met with on the coast in winter. Abundant in the west, breeding both on fresh and sea water lochs. Generally distributed.

PYGOPODES.

Family COLYMBIDÆ.

Great Northern Diver—*Colymbus glacialis*, Linn.

Common along the east coast in winter and spring, but more abundant at the latter season. We have a fine specimen in our collection, obtained on one of the pools of the Brora river in May. Found in the Kyle of Tongue all the year round, but most abundantly from September to February. We have recorded the presence of a pair on a far inland fresh-water loch in mid-summer (see *Zool.*, 2d ser. p. 1309). We do not wish again to insist on the fact of their breeding, but we still adhere to the correctness of our statement as to their authentication on that occasion.

Black-throated Diver—*Colymbus arcticus*, Linn.

Summer visitant, breeding on many of the lochs in the eastern district; rarely seen on the coast, going straight to their breeding-grounds, and leaving at once for the south as soon as the young can fly. Few large lochs are without a pair of these birds. Very common in the west, where this species outnumbers the red-throated species; in the north-

east, however, the proportions appear to be reversed. Prefers large lochs with green islands for breeding purposes.

Red-throated Diver—*Colymbus septentrionalis*, Lath.

Summer visitant, but not nearly so abundant in the eastern districts as the last-named; getting more numerous towards the north-east and north, where their numbers are about three to one of the last-named species. We have received a good many eggs from the north-east, about Strathy and Farr. Prefers mossy tarns with green edges for nesting purposes; rarely found breeding on islands of the larger lochs. Is seen at times on the Dornoch Firth. Not very abundant in the west.

Family PODICIPITIDÆ.

Sclavonian Grebe—*Podiceps auritus* (Linn.)

A casual winter visitant. A bird of this species was taken in a garden at Golspie in December 1882. The person who caught it kept it alive for a week on fish, but it at last died, and is now in the Dunrobin Museum. It occurs also in the Dornoch Firth.

Great-crested Grebe—*Podiceps cristatus* (Linn.)

This species has been killed by Mr. Jennins on the Dornoch Firth.

Little Grebe—*Podiceps minor* (Gmel.)

Resident, but not abundant on the east coast, being seen most frequently in the winter; they breed on Loch Brora. A favourite place in the winter is the stream that issues from the sluices at the Mound. Common about Dornoch, where three or four sittings of eggs can be obtained annually. Breeds near Balnakeil, Durness, and at Tongue, but rare or absent in the west. One was shot on Loch Mulach Corry, at the base of Ben More, Assynt, a year or two previous to 1877, the first seen in the district by any of the native keepers or shepherds.

Obs. Red-necked Grebe—*Podiceps griseigena* (Bodd).

No actual record of the occurrence of this species has reached us.

LARIDÆ.

Family STERNINÆ.

Arctic Tern—*Sterna macrura*, Naumann.

Summer visitant; common along all the eastern seaboard, breeding in scattered colonies. Common at various points on the west and north coasts, usually in colonies, and preferring insular positions.

Common Tern—*Sterna fluviatilis*, Naumann.

Summer visitant; more usually breeding near fresh water than the Arctic Tern. Breeds at Loch Migdale, near Bonar.

We consider the Arctic Tern the more abundant of the two species throughout the county, but we have ourselves taken eggs of the Common Tern on Loch Migdale. The statement that the Common Tern is found on a small island near Handa (*Proc. Glasg. Nat. Hist. Soc.*, 1875. J. A. H. B.) may or may not be correct; the note made many years ago still stands in our note-book, but we again repeat it here, as perhaps deserving of further inquiry. We believe the Common Tern to be much rarer on the west coast of Scotland than on the east.

Lesser Tern—*Sterna minuta*, Linn.

A rare summer visitant; a pair visited the shore between Brora and Kintradwell in 1871, and probably bred there; they were also seen in the same place in 1877. They have not been observed in the west to our knowledge.

Family LARINÆ.

Ivory Gull—*Pagophila eburnea* (Phipps).

Mr. Crawford of Tongue has a specimen that was killed at Scourie in the winter of 1879-80.

Black-headed Gull—*Chroicocephalus ridibundus* (Lin.)

Common, and resident on the east coast; choosing some extremely swampy place to breed in, inaccessible, as a rule, owing to the depth of the surrounding mud.

Entirely absent in the west. Seen following the harrows at Durness; but no breeding-place known to us in the neighbourhood.

Little Gull—*Chroicocephalus minutus* (Pallas).

Very rare visitant. The only specimen known to us is a dried-up mummy that was picked up in a cart-rut near Balnacoil in the spring of 1874.

Common Gull—*Larus canus*, Linn.

Resident, and abundant the whole year round on the east coast; like the other gulls retiring to the hill lochs to breed. Usually they breed in colonies like the black-headed gull. Breeding numerously in the west, in colonies, on the islands of both sea and fresh water lochs. A very tame bird of this species was well known to anglers on Loch Awe, Assynt, in 1880, coming to be fed always at lunch-time.

Great Black-backed Gull—*Larus marinus*, Linn.

Resident, and common the whole year round on the east coast, but scarcer in winter; retiring to the hill lochs to breed; rarely more than a pair on a loch, if frequented by other gulls, and often choosing a solitary island which they keep to themselves. Near Dornoch, however, we understand there is a loch tenanted by a colony of these birds. Breeds in a colony of about fifteen pairs on the summit of the Stack of Handa. A far inland locality, where a single pair breeds, is at a loch-side near Oykel Bridge.

Lesser Black-backed Gull—*Larus fuscus*, Linn.

Very common in summer, much less numerous in the winter. Breeds in numbers about the hill lochs of the east coast, and often away from the lochs on the flow ground. Less numerous now than ten years ago; and the same may be said of the species just mentioned, and also the next in order, the herring gull, as the eggs are smashed and the young killed on all possible occasions by the shepherds and gamekeepers, on account of the damage they do. On some of the large flows in the centre of the county gulls are now almost extinct, where ten years ago they were abundant. Found generally mixing with herring gulls, where the latter breed inland on the west, but occupying independent colonies on the Badcall Islands, and on an island of Loch Scheanaskaig, in West Cromarty.

Herring Gull—*Larus argentatus*, Gmel.

Common all the year round on the coasts; retiring in the east inland, to breed, where it mixes with *L. fuscus*, the two species nesting side by side.

Iceland Gull—*Larus leucopterus*, Faber.

Winter visitant; not uncommon on the east coast.

Kittiwake—*Rissa tridactyla* (Linn.)

A visitant only to the east coast, generally in spring.

Breeds abundantly in the west, at Handa, and on Bulgie Island; also on the north coast cliffs near Cape Wrath, but not so abundantly. There are many roosting-places unoccupied by nests, such as one on Bulgie Island, and another on the east side of Eilean Garbh.

Family STERCORARIINÆ.

Pomatorhine Skua—*Stercorarius pomatorhinus* (Temm.)

Rare visitant; four were seen at Balnacoil on the 13th of October 1879, a year famous for the number of these birds obtained all through the country.

Note.—These birds appear to frequent the ocean and seas of the Outer Hebrides in some numbers, every summer of late years. We saw them not uncommonly west of Lewis in 1881.

Richardson's Skua—*Stercorarius crepidatus* (Banks.)

Autumn visitant; breeding in one place in the county only, as far as is known to us; a pair, and one pair only, coming to the same spot year after year.

Stray examples have occurred in the west, but there are no known breeding-sites. We have received the bird in the flesh from Handa, but assuredly it does not breed there.

Family PROCELLARIIDÆ.

Leach's Petrel—*Procellaria leucorrhoa*, Vieill.

A rare visitant. There is a specimen in the Dunrobin Museum that was taken at Forsinard on January 10, 1877.[1]

Stormy Petrel—*Procellaria pelagica*, Linn.

Apparently a rare visitant. A specimen in the Dunrobin Museum was taken at Scourie on the 30th of October 1845.

We have never found this species breeding in Sutherland, but can scarcely believe but that it is found on the Badcall Isles, and elsewhere, nesting (see under Starling, *antea*, p. 343). They breed on the Pentland Skerries, and occur in misty or hazy weather, not infrequently at the lighthouse lanterns of Dunnet Head and Cape Wrath.

ALCÆ.

Family ALCIDÆ.

Razorbill—*Alca torda*, Linn.

Occasional in winter and spring; numbers thrown up dead after a storm on the east coast, on these occasions far outnumbering the guillemots in quantity, in about the proportion of six to one.

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[1] As this species breeds on North Rona, it may occasionally be expected to occur in Sutherland. (See Mr. J. Swinburne's Notes, *Proc. Ryl. Phyl. Soc.*, 1883-4.)

Abundant on Handa and elsewhere, such as Cearvig Bay and Cliffs of Clomore, etc., on the north coast. The annual reports of the Committee on Migration of Birds for the British Association show with what marvellous regularity they appear at their various breeding-stations, and then leave again in autumn, along with other rock-birds.

Common Guillemot—*Lomvia troile* (Linn.)

Occasional visitant on the east coast, especially in winter and spring, and often thrown up dead after a storm.

Rock-birds breed plentifully on the Caithness side of the Ord, but never on the Sutherland side.

When Guillemots or Razorbills are observed swimming near the shore in winter on the east coast, they are generally, if not always, weakly birds, and probably perish.

Exceedingly abundant on Handa; the summit of the Stack and the regular niched ledges of the cliffs literally swarming with life. The bridled or ringed variety (*U. lacrymans* or *U. ringvia*) is in proportion to the others as one or two in every ten or a dozen. The identity of those forms has been placed, by us, beyond doubt. The regularity of the migration from east to west in autumn at all the north coast lighthouses, and the dates of commencement and completion, are interesting (see *Migration Reports*, 1879-1883).

Black Guillemot—*Uria grylle* (Linn.)

A spring visitant to the east coast.

Breeds not uncommonly on the west coast, and in a colony on the Badcall Islands. Once plentiful on Handa, now rare, if indeed present at all, and the cause assigned for extinction by the cragsmen—the Brothers Mathieson—is that rats have managed to dislodge them. We have found that the males assist in incubation, having one or two hatching spots on the breast, and these have been taken off the eggs. They are abundant also along the north coast, west of Loch Erriboll.

Little Auk—*Mergulus alle* (Linn.)

Winter visitant, but not occurring every year.

Puffin—*Fratercula arctica* (Linn.)

Winter visitant to the east coast.

The principal colonies of these birds on the west and north are:—Handa, about three miles of cliff and slopes east of Cearvig Bay, occupied in many places from base to summits, which are 380 feet in height—a marvellously fine colony—at Clochbheag, near Durness, and scattered colonies at other points. They used to breed at Garbh Island numerously, but are now rare there; having been persecuted, they have taken to the higher cliffs of Clomore and Cearvig. Rats have also driven them off the tops at Handa into more secure crevices in the face and slopes.

STEGANOPODES.

Family PELECANIDÆ

Gannet—*Sula bassana* (Linn.)

An occasional visitant to the east coast; not rare; old birds most abundant. The regular streams of migration of the Gannets round our islands are worthy of attention; flying east and north along the north coast in spring, and flying west daily in autumn. Between 2150 and 3080 have been estimated to fly westward within view of Cape Wrath during fifteen days noted, between 14th July and 9th August. They pass between 7 A.M. and 10 P.M. each day, in all winds and weathers. (See *Migration Report*, 1879, p. 41.)

Cormorant—*Phalacrocorax carbo* (Linn.)

Common, and resident, though not breeding on the south-east coast; some go far inland to feed.

The principal colonies known to us are Badcall Islands, in the west—but decreasing here fast from persecution—and a very fine colony indeed close to Whiten Head, on "The Maiden's Rocks," and on the bold cone of the headland itself, at a height of about 350 feet. At that distance with binoculars the white thigh-spots were quite distinctly visible. A man scaled the face one day and brought down a shawlful of eggs. Rare on Handa, choosing the highest ledges, just under the summits of the perpendicular cliffs.

Shag—*Phalacrocorax graculus* (Linn.)

Common, and resident all round the coasts, not venturing far inland; does not breed on the east coast, but does so abundantly in the caves on the north, and in all suitable localities there. It is rarely found in large colonies, probably owing to the scarcity of ledges of the requisite nature, which, to suit these birds, should overhang deep water.

FISHES OF SUTHERLAND AND THE MORAY FIRTH.

I.

PISCES.

PALÆICTHYES.

Order CHONDROPTERYGII.

Suborder *PLAGIOSTOMATA.*

Division SELACHOIDEI.

Family CARCHARIDÆ.

Blue Shark—*Carcharias glaucus* (Linn.)

Rare; cast ashore near Kintradwell after a storm. A specimen in the Dunrobin Museum is dated Kintradwell, November 1871.

Common Tope—*Galeus canis,* Bonap.

Smooth Hound—*Mustelus vulgaris,* Müll and Herde.

Family LAMNIDÆ.

Porbeagle—*Lamna cornubica* (Gmel.)

A specimen in the Dunrobin Museum is labelled Loch Inver, 1875; and our fishing party caught another on a long sea-line at Loch Inver in 1881, which weighed 56 lbs.

Thrasher Shark—*Alopecias vulpes* (Gmel.)

A whale was brought ashore near Wick, said to have been killed by a Thrasher; the combat was observed from the cliffs by the fishermen, who secured the dead whale. Another specimen was taken at Fortrose, Ross-shire, in 1846 (Martin).

Family SCYLLIDÆ.

Small Spotted Dogfish—*Scyllium canicula* (Linn.)

Black-mouthed Dogfish—*Pristiurus melanostomus*, Bonap.

Recorded from Banff by Edward.

Family SPINACIDÆ.

Picked Dogfish—*Acanthias vulgaris*, Risso.

An abundant species; often picked up dead along the shore, generally in autumn; very destructive to herrings in the net. Particularly abundant on the west coast in July 1882.

Greenland Shark—*Læmargus borealis* (Scoresby).

Reported by Mr. Peach as occurring occasionally. Recorded by Fleming from the Pentland Firth in 1803; and on May 22, 1859, one 10 feet long was found entangled on a fishing-line (*vide* Brown, *Zool.*, 1860).

Spinous Shark—*Echinorhinus spinosus* (Gmel.)

Family RHINIDÆ.

Angel Fish—*Rhina squatina* (Linn.)

Mr. Peach says this species is often caught by the Buckie fishermen, but being valueless, is thrown overboard.

Division BATOIDEI.

Family TORPEDINIDÆ

Torpedo—*Torpedo hebetans*, Lowe.

Moray Firth, 1884.

Family RAJIDÆ.

Thornback Ray—*Raja clavata*, Linn.

Starry Ray—*Raja radiata*, Donovan.

Sand Ray—*Raja circularis*, Couch.

Skate—*Raja batis*, Linn.

Abundant all round the coasts.

Long-nosed Skate—*Raja vomer*, Fries.

Recorded by Edward from Banff.

Family TRYGONIDÆ.

Sting-Ray—*Trygon pastinaca* (Linn.)

Family MYLIOBATIDÆ.

Eagle-Ray—*Myliobatis aquila* (Linn.)

Order GANOIDEI.

Suborder *CHONDROSTEI.*

Family ACIPENSERIDÆ.

Sturgeon—*Acipenser sturio,* Linn.

Mr. Crawford informs us that this species occurs off the north coast of the county, and there is a specimen in the Dunrobin Museum.

Subclass TELEOSTEI.

Order I. ACANTHOPTERYGII.

Division ACANTHOPTERYGII PERCIFORMES.

Family PERCIDÆ.

Perch—*Perca fluviatilis* (Rond.)

Mr. Honstoun of Kintradwell introdnced a few of these fish into a small pond near his house, but they do not seem to have done well.

Basse—*Labrax lupus* (Lacep.)

Recorded by Dr. Joass from near Golspie, and by Mr. Peach from the Kyle of Tongue.

Family MULLIDÆ (Swanson).

Surmullet—*Mullus barbatus,* Linn.

Taken in the Moray Firth (Gordon). Day's *Brit. Fishes,* vol. i. p. 24.

Family SPARIDÆ (Cuv.)

Common Sea-bream—*Pagellus centrodontus,* De la Roche.

Common in the Moray Firth, and were increasing in 1852. Day's *Brit. Fishes,* vol. i. p. 37.

Very abundant in the sea-lochs of the west, and known by the local name of "Bnlgarian Haddie." We have caught many of these fish at the head of Glen Coul, and also at Loch Inver. These sell in the London market at one shilling each, but are not reckoned marketable by the west coast fishermen, nor much esteemed as food.

Division ACANTHOPTERYGII COTTO-SCOMBRIFORMES.

Family CARANGIDÆ.

Horse-mackerel—*Caranx trachurus* (Linn.)

Boar-fish—*Capros aper* (Linn.)

A specimen taken in the Moray Firth in 1852, and recorded by Gordon in the *Zool.*, p. 3459.

Family CYTTIDÆ.

Doree—*Zeus faber* (Linn.)

Mr. Crawford mentions this fish as occurring about Tongue, and there is a specimen in the Dunrobin Museum, taken at Brora, March 6, 1883.

Family CORYPHANIDÆ.

Opah—*Lampris luna* (Gm.)

On the authority of Mr. Day, this fish has occurred in the Moray Firth.

Family SCOMBRIDÆ.

Mackerel—*Scomber scomber*, Linn.

Still frequents the east coast at intervals, but is much rarer than formerly; apparently never such a fish of commerce as in the south of England. Occurs also on the west and north coasts.

Tunny—*Orcynus thynnus* (Linn.)

Day, *Brit. Fishes*, vol. i. p. 97, says, "In 1850 tunnies were common in the Moray Firth; one captured was 9 ft. long; while another, killed near Inverness, was 5 ft." (Gordon, *Zool.*, 1852, p. 3459.)

"In 1883 Mr. Speedie's salmon-fishers caught a tunny in the stake-nets at Strathy Bay; it was about 8 ft. long, and in fine plump condition, but in place of having it preserved they cut it up." (Crawford, *in. lit.*)

Plain Bonito—*Auxis rochei* (Risso).

Couch, in his *Brit. Fishes*, vol. ii. p. 105, speaking of this fish, says, "It comes more rarely towards the north, although, as I am informed by the Rev. Walter Gordon of Macduff, it has been met with in the Moray Firth."

Family TRACHINIDÆ (Risso).

Viper Weever—*Trachinus vipera*, C. & V.

Found along the sandy shores of the east coast; taken by the seine net at the Little Ferry.

Greater Weever —*Trachinus draco*, L.

Family PEDICULATI.

The Angler—*Lophius piscatorius*, Linn.

Often thrown up on the shores of the east coast after a storm.

Family COTTIDÆ.

Short Spined Bullhead—*Cottus scorpius*, Linn.

A specimen in the Dunrobin Aquarium.

Father Lasher—*Cottus bubalis*, Euphrasen.

Common along the shores of the east coast.

River Bullhead—*Cottus gobio*, Linn.

Common.

Tub Fish —*Trigla hirundo*, Linn.

Red Gurnard—*Trigla cuculus*, Linn.

Streaked Gurnard—*Trigla lineata*, Gmel.

Gurnard—*Trigla gurnardus*, L.

The Crooner, as it is generally termed in Scotland, is abundant along the east coast of Sutherland, and also in the west and north.

Piper—*Trigla lyra*, Linn.

Reported to us by Mr. Houstoun as common on the east coast of Sutherland.

Family CATAPHRACTI (Muller.)

Pogge—*Agonus cataphractus* (Bl. Schn.)

Day, in his *Brit. Fishes*, vol. i. p. 69, says, "Gordon observed, in the Moray Firth, in January 1849, ten examples, from 2 to 5 inches long, that were found in the stomach of a cod" (*Zool.* p. 3458).

Division ACANTHOPTERYGII GOBIIFORMES.

Family DISCOBOLI.

Lumpfish—*Cyclopterus lumpus* (Linn.)

Common along the east coast of Sutherland, where they come close in to shore to spawn in April. The newly hatched young of this fish occurred very plentifully near the mouth of the Kyle of Durness last year; so we are informed by Mr. Peach.

Sea Snail—*Liparis vulgaris*, Flem.

Mr. Houstoun informs us this species is rare on the east coast of Sutherland.

Family GOBIIDÆ.

Two-spotted Goby—*Gobius ruthensparri*, Euph.

Mr. Houstoun records a goby, probably referable to this species, as common about the rocks at Kintradwell.

Rock Goby—*Gobius niger*, Linn.

Dusky Sculpin—*Callionymus lyra*, Linn.

Recorded from the Moray Firth—Day, *Brit. Fishes*, vol. i. p. 177.

Division ACANTHOPTERYGII BLENNIIFORMES.

Family BLENNIIDÆ.

Wolf-fish—*Anarrhichas lupus*, Linn.

According to Gordon (*Zool.*, 1852, p. 3460) the fishermen in the Moray Firth say that it (Wolf-fish) is more plentiful in March than at any other season, and that some of them are as big as any cod, and are good for eating. On the east coast of Sutherland Mr. Houstoun says it is rare, generally being thrown up on the beach after a storm. The specimen in the Dunrobin Museum is labelled "Strathsteven Beach, February 1880."

Shanny—*Blennius pholis*, Linn.

Recorded from the Moray Firth by Day, *Brit. Fishes*, vol. i. p. 205; and also by Dr. Joass, Golspie. Mr. Peach found this fish on the north coast of the county.

Yarrell's Blenny—*Carelophus Ascanii* (Walbaum).

One example taken in the Moray Firth in 1839.—Day, *Brit. Fishes*, vol. i. p. 207.

Butter-fish—*Centronotus gunellus* (Linn.)

Gordon (*Zool.*, 1852, p. 3460) records the Butter-fish as very common in the Moray Firth in pools below high-water mark; it is also mentioned by Mr. Houstoun as occurring off the east coast of Sutherland, and by Mr. Peach as occurring off the north coast.

Viviparous Blenny—*Zoarces viviparus*, Linn.

Mr. Houstoun of Kintradwell records this as a species frequently met with in the sea-pools of the east coast, and Mr. Peach observed it on the north coast.

Division ACANTHOPTERYGII MUGILIFORMES.

Family MUGILIDÆ.

Lesser Gray Mullet—*Mugil chelo* (Cuv.)

Common along the shores of the east coast of Sutherland in suitable places.

Division ACANTHOPTERYGII GASTEROSTEIFORMES.

Family GASTEROSTEIDÆ.

Three-spined Stickleback—*Gasterosteus aculeatus*, Linn.

Common, both on the east and north coasts.

Fifteen-spined Stickleback—*Gasterosteus spinachia*, Linn.

According to Day, only two instances have been recorded from the Moray Firth; but Dr. Joass of Golspie records a specimen now in the aquarium at Dunrobin.

Division ACANTHOPTERYGII GOBIESOCIFORMES.

Family GLOBIESOCIDÆ.

Doubly-spotted Sucker—*Lepadogaster bimaculatus* (Penn.)

Recorded from the Moray Firth by Day, *Brit. Fishes*, vol. i. p. 193.

Division ACANTHOPTERYGII TÆNIIFORMES.

Family TRACHYPTERIDÆ.

Deal-fish—*Trachypterus arcticus* (Brünn).

Day, *Brit. Fishes*, vol. i. p. 219, says, under this heading:—"1847, one 3 feet long, at Burghead, Moray Firth (Martin); where Dr. Gordon (*Zool.*, p. 3460) alludes to the capture of two."

Banks'-oar Fish—*Regaleeus banksii* (C. & V.)

In his *Brit. Fishes*, vol. ii. p. 260, Couch says of this fish:—"Since the capture of the example of which we have thus given an enlarged account, three or four others have been met with along the north shores of the kingdom, the largest of which was obtained at Kiess, a few miles north of Wick, and consequently not far from the extreme north of Scotland. I am indebted for the few particulars known of it to Mr. Peach, who informs me that it measured 15 feet in length, and, as being much injured about the head."

Also recorded by Mr. Day from the Moray Firth in his list of fishes of that place.

Order 2. ACANTHOPTERYGII PHARYNGOGNATHI.

Family LABRIDÆ.

Striped Wrasse—*Labrus mixtus*, Linn.

Recorded by Dr. Day from the Moray Firth, and there is a specimen in the Dunrobin Museum, caught off there in September 1870.

Gold-sinny—*Ctenolabrus rupestris* (Linn.)

A specimen taken at Dunrobin, 1876.

Baillon's Wrasse—*Crenilabrus melops* (Linn.)

Day, *Brit. Fishes*, vol. i. p. 263, remarks that, according to Martin, this species is often met with in the Moray Firth, and it is recorded by Dr. Joass as occurring in the neighbourhood of Golspie.

Ballan Wrasse—*Labrus maculatus*, Bl.

Mr. Houstoun informs us that this species is seen on the east coast of Sutherland.

Order 3. ANACANTHINI.

Division ANACANTHINI GADOIDEI.

Family GADIDÆ. (Cuv.)

Cod—*Gadus morrhua*, Linn.

Abundant all round the coast.

Haddock—*Gadus æglefinus*, Linn.

Very abundant. The Moray Firth haddocks have a great reputation for their good flavour; almost the staple fish on the east coast. Common in Loch Inver Bay, and of large size.

Power—*Gadus minutus*, Linn.

"Abundant in the Moray Firth." (G. Harris, *Zool.*, 1854, p. 4261.)

Whiting—*Gadus merlangus*, Linn.

Abundant, but not nearly so much so as the haddock.

Coal Fish—*Gadus virens*, Linn.

Abundant the year round; most commonly caught at that state of age when they are known as "cuddies." Common on the cod-banks off the west coast, in the adult stage, where we have caught them with the leaden "murderer."

Pollack—*Gadus pollachius*, Linn.

More abundant on the west than east coast; here it always goes under the name of "Lythe." It seemed to us that "Lythe" caught on the north coast were much more powerful fish than those of the west coast.

Hake—*Merluccius vulgaris* (Cuv.)

Recorded by Day, *Brit. Fishes*, vol. i. p. 302, as found in the Moray Firth during July and August, following the herrings, hence probably the common name "Herring Hake." Reported from the north coast by Mr. Crawford, and caught by us at Loch Inver on the long sea-lines.

Ling—*Molva vulgaris*, Flem.

Abundant off the coast, though not so numerous as the cod. Common at Loch Inver, and caught by us on the long sea-lines.

Five-bearded Rockling—*Motella mustela* (Linn.)

Three-bearded Rockling—*Motella cimbria* (Linn.)

Mr. Peach informs us that these two species are not uncommon in the rock-pools near low tide.

Torsk—*Brosmius brosme* (Müll.)

This is a deep sea fish, rarely coming close to land, but has been caught on the Minch by fishermen at Loch Inver. It is commoner outside the Outer Hebrides. Is reported rare on the east coast by Dr. Joass.

Family OPHIDIIDÆ.

Larger Launce—*Ammodytes lanceolatus*, Lesauvage.

One example of this fish is recorded from the Moray Firth, taken from the stomach of a cod—Day, *Brit. Fishes*, vol. i. p. 331.

Lesser Launce—*Ammodytes tobianus*, Linn.

Very common all along the east coast, especially at the sandbanks of the little Ferry. Common at all suitable places on the west coast, such as Clach toll Bay, at Loch Sandwood, and on the north at Balnakeil Bay.

Division ANACANTHINI PLEURONECTOIDEI.

PLEURONECTIDÆ.

Holibut—*Hippoglossus vulgaris*, Flem.

Abundant, being more numerous and of a larger size on the north and west coasts. An enormous specimen was hooked by the "Murderer" bait off Stoir Head in July 1883, but escaped after having been half into the boat. It twisted one gaff almost straight, and carried off every hook on the lead. We reckoned it at about 3 feet in breadth, and 5½ to 6 feet long. Another, captured a little farther north in 1882, was sold in London for £4 sterling.

Turbot—*Rhombus maximus* (Linn.)

Apparently not abundant, but occurs off the east coast, and is reported by Mr. Crawford as being found also on the north and north-west coast.

Brill—*Rhombus lævis* (Linn.)

Sail-fluke—*Rhombus megastoma* (Don.)

Not uncommon occasionally, Mr. Peach informs us.

Plaice—*Pleuronectes platessa*, Linn.

Common all round the coasts. Not held in high estimation for the table

Muller's Topknot—*Rhombus punctatus*, Bl.

Block's Topknot—*Rhombus unimaculatus* (Risso).

Both these two last species are recorded as rare by Mr. Peach.

Smear Dab—*Pleuronectes microcephalus*, Donov.

Recorded from the Moray Firth by Harrison.

Dab—*Pleuronectes limanda*, Linn.

Common all round the coast, in suitable localities.

Craig Fluke or Pole—*Pleuronectes cynoglossus*, Linn.

Flounder—*Pleuronectes flesus*, Linn.

Abundant; going some distance even up the rapid rivers of the east of the county, as the Helmsdale, but is not known to us to ascend the rivers of the west coast.

Sole—*Solea vulgaris*, Quensel.

Common in the Moray Firth, and is found also on the north coast; rare near the east coast of Sutherland.

Lemon Sole—*Solea aurantiaca*, Günth.

Mr. Peach informs us this species is not uncommon.

Order PHYSOSTOMI.

Family CYPRINIDÆ.

Minnow—*Leuciscus phoxinus* (Linn.)

Inserted on the authority of Dr. Joass.

Family SCOMBROSCIDÆ.

Garfish—*Belone vulgaris*, Flem.

Not common on the east coast of the county, as reported to us by Mr. Houstoun; there is a specimen in the County Museum, taken at Brora in 1869.

Family STERNOPTYCHIDÆ.

Argentine—*Maurolicus borealis* (Nils.)

Occurs in the Pentland Firth.

[In speaking of the fresh-water fish, on which for some years we have kept careful notes, and have made some interesting experiments in the county, we will confine our remarks in this place to the subject of distribution and variation, edible qualities, and sporting capabilities. There remains still much in this branch alone to be done in the county, and much more than we have space for here could already be written upon them.]

Family ESOCIDÆ.

Pike—*Esox lucius*, Linn.

Occurs at Loch Migdale, the only loch in the county where it is found. Sheriff Mackenzie writes us he has never seen a specimen from this loch, so the species may have died out. They were introduced at least sixty years ago by the then Mr. Dempster of Skibo, and were caught in Loch Achilty, in the east of Ross-shire, by Peter M'Aulay, the keeper at Coul, for that purpose.

Family SALMONIDÆ.

Salmon—*Salmo salar*, Linn.

Abundant, some years much more so than at others, the early run of spring fish depending on the mildness or severity of the winter; consequently the years 1882-3-4 are noted for the numbers of Salmon caught early in the season.

The rivers Naver, Brora, and Helmsdale are the three early rivers of the county, and clean Salmon can be got in them in every month of the year, unless November prove an exception, this being the principal spawning month.

In the western rivers they run later, and the first heavy flood which comes, usually about the 10th to 15th July, brings up great numbers. A few run in May, but very few are caught at that time. In 1883 (July) we rose a large salmon twice in the salt water at Loch Inver with a "silver doctor."

Sea-Trout—*Salmo trutta*, Flem.

Abundant; rarely ascending the rivers before the end of May, though an undoubtedly clean one is at times caught by the nets in February and March.

The east coast Sea-Trout are generally much more spotted, and not such finely shaped fish as those of the west coast. The Sea-Trout of the northern Kyles of Durness and Tongue are famed for their firmness and flavour, and readily take sand-eel as bait. In June and July 1883,

before the rains set in and the fish could ascend the rivers, many Sea-Trout were caught in the salt water with sand-eel or small imitation minnow at Loch Iuver, where they were scarcely ever known to have been caught before in the sea.

Common Trout—*Salmo fario*, Linn.

So many interesting varieties come under this heading that it would occupy too much of our space to go into particulars of each. We give the names of these below, and from the list it will be seen that Sutherland possesses all, or nearly all, that are known.

Scarcely a river in the east of Sutherland produces a Trout possessing any edible qualities, probably from the generally stony nature of the streams, and consequent lack of food; but the lochs of the east almost all contain good red-fleshed and firm trout. In the west, amongst the limestone districts, the white-fleshed trout of the burns are most delicious eating, and so also are the trout of many of the lochs of Assynt, which are pink in flesh. The very dark red-fleshed trout of Gorm lochs are flabby and "out of season" in June and July, when ova is often found in them. We could say a great deal more in detail, but space forbids in this place.

Varieties of Trout (*Salmo fario*) are as follows:—

a. Great Lake Trout, *Salmo ferox*, Jard. and Selby. General in the larger and deeper lochs, and even found in the shallow Loch Borrolan.

b. Parr-marked Trout, *S. Cornubiensis*, Walb. Lochan Sgearach, Reay Forest: above a fall of some sixty feet. Specimens caught in June 1883 ran 3 to the pound and larger. Strong and active. Parr-marks fade after death.

c. Tidal Trout, *S. estuarius*, Knox. "Fossak" of Loch Inver. Ascends rivers only a limited distance, varying in different streams. Runs 2 to 5 lbs. weight; white-fleshed; coarse, rich food, if in season. Appears in May. Disappears in August. Strong.

d. Gillarroo Trout, *S. stomachicus*, Günth. Loch Mulach Corrie, on the top of the Assynt limestone and base of Ben More. Doubtful if this is separable from the Irish examples. Flesh pale pink; delicious eating; runs to 5 or 6 lbs. (rare) weight. Strong and active. Another trout, or the young of this, is also found here, averaging 3 inches in length, with somewhat peculiar coloration; *not* appareutly abundant. May be young of the other, but have the appearance of adult fish.

e. Crassapuil Trout. Closely allied to *S. levenensis*, first described by Dr. F. Day, from examples forwarded by us from Durness.

Other remarkable varieties occur, most of which we believe are known to us, as well as varieties of *Salmo salar*, many of which inhabit very inaccessible and rarely visited lochs. Upon this subject we will have more to say at some future time.

In the Dunrobin Museum is a series of stretched skins of Trout, collected by the late Mr. Young of Invershin, which are called crosses between Trout and Salmon, etc.

This collection might have been extremely valuable from a scientific point of view had the information been fuller and more carefully kept. As it is, we fear the specimens are worthless, unless any of the late Mr. Young's manuscripts are available and could be searched.

American Brook Trout—*Salmo fontinalis*, Agassiz (?).

Introduced some years ago by His Grace the Duke of Sutherland, most of which were placed in Loch Brora, and a few in the Kintradwell burn; we doubt if many, or indeed any, of these are now left.

The Charr—*Salmo alpinus*, Linn.

Common in some of the lochs throughout the county, and probably

inhabits others where its presence is yet undetected, as the Charr rarely takes a fly in most of the lochs, though there are exceptions, as we have caught occasional ones in Lochs Merkland, Griam, and Shin, and Lochs Borrolan, Urigill, Camaloch, Veyattie, Fewn, Assynt, and Brora, with fly, and more rarely with artificial minnow.

Smelt—*Osmerus eperlanus* (Flem.)

Mr. Peach informs us he has caught the Smelt when fishing for sillocks.

Family CLUPEIDÆ.

Herring—*Clupea harengus*, Linn.

Occurs along the east coast the whole year, but most abundant in the summer and early autumn; fish full of roe are taken in the early spring, but do not appear to have the fine flavour of the autumn Herring. Abundant on the west coast, but mostly fished from Stornoway. Ascends the sea-lochs of Glens Dhu and Coul, especially the latter, as well as other sea-lochs.

Sprat—*Clupea sprattus*, Linn.

An irregular visitant to the east coast, though very abundant every year lower down the coast at the Beauly Firth. In the beginning of 1884 vast numbers were caught off Golspie and Brora, quantities being thrown ashore dead. Not known by us to occur on the west coast.

Allis Shad—*Clupea alosa*, Linn.

Taken at Invershin, 1870.

Family MURÆNIDÆ.

Eel—*Anguilla vulgaris*, Flem.

Abundant in all the rivers and lochs of the east coast. About the middle of April the young eels, or elvers, as they are there called, begin to ascend the Brora in millions, the sides of the river the whole way up being black with them; they even ascend the Blackwater Falls at Balnacoil, by taking advantage of any damp inequalities of the rock; every trout caught at that time is gorged with them. They do not appear in the rivers of the west so early in the season as they do in the east, but by June all the lochs connecting with the Inver are full of them.

Conger—*Conger vulgaris*, Cuv.

Common; much more sought after of late years, as they command a ready sale and fair price. Delicious eating if properly cooked. We were present at a *table d'hôte* where fourteen people all took a second helping, and pronounced them "delicious."

Order V. LOPHOBRANCHII.

Family SYNGNATHIDÆ.

Greater Pipe Fish—*Syngnathus acus*, Linn.

Recorded by Day, *Brit. Fishes*, vol. ii. p. 260, as having twice been taken from the stomach of a cod in the Moray Firth (Gordon).

Straight-nosed Pipe Fish—*Nerophis ophidion* (Linn.)

Obs.—A Pipe Fish (*sp. inc.*) is recorded as not rare on the east coast of Sutherland, by Mr. Houstoun and Dr. Joass.

Worm Pipe Fish—*Nerophis lumbrieiformis* (Linn.)

Order VI. PLECTOGNATHI.

Family GYMNODONTES.

Sunfish—*Orthagoriscus mola* (Linn.)

A specimen, now in the Dunrobin Museum, was caught off Golspie, 1880.

Oblong Sunfish—*Orthagoriseus truncatus* (Retz).

Recorded by Edward from Banff, and in August 1846 and October 1850 examples were taken in the Moray Firth and at Elgin.

Sub-class CYCLOSTOMATA.

Family PETROMYZONTIDÆ.

Lamprey—*Petromyzon marinus*, Linn.

Reported from the east coast of Sutherland, by Mr. Houstoun, as not rare.

Lampern—*Petromyzon fluviatilis*, Linn.

Recorded from the Spey and Lossie rivers by Edward, and as being common there.

Small Lamprey—*Petromyzon branchialis*, Linn.

Edward records this species from the Lossie river, and from Banffshire.

Family MYXINIDÆ.

Hog Fish—*Myxine glutinosa*, Linn.

Recorded from Banff by Edward.

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